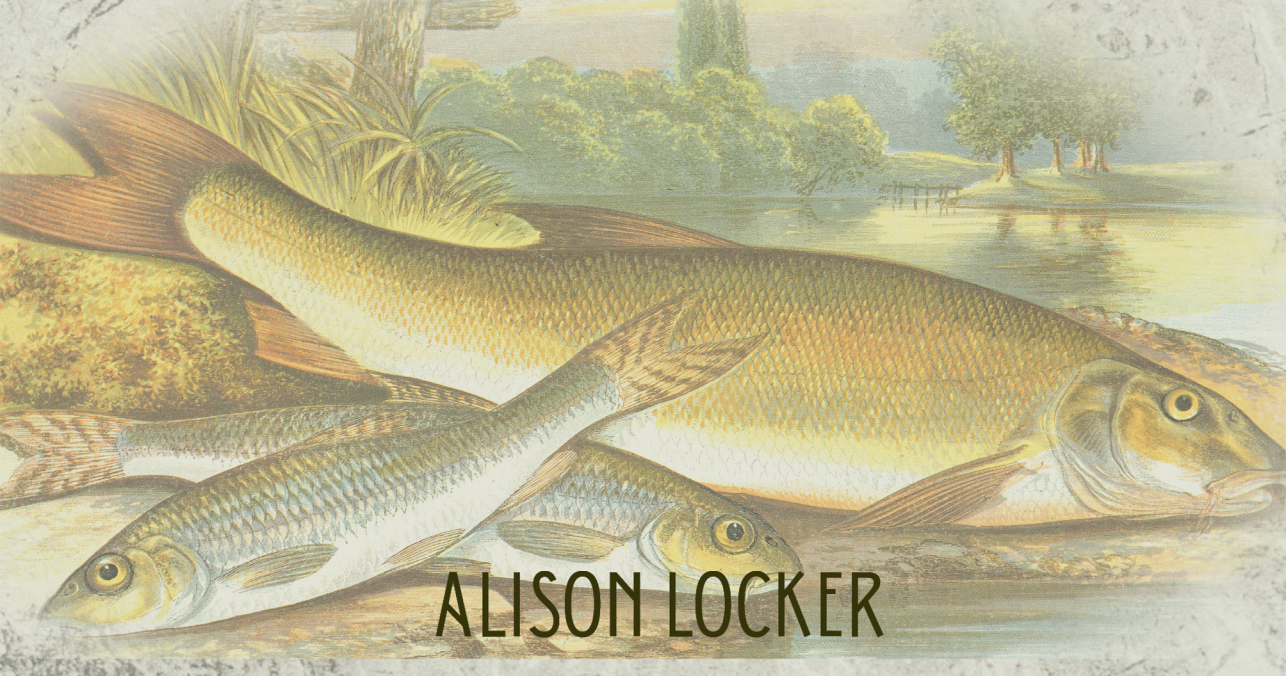
FRESHWATER FISH IN ENGLAND

A SOCIAL AND CULTURAL HISTORY OF COARSE FISH FROM PREHISTORY TO THE PRESENT DAY



ALISON LOCKER

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Front cover: Carp (top) and barbel with two gudgeon. From Rev. William Houghton (headmaster, naturalist and angler 1828–1895). 1879. *British Freshwater Fishes*. Webb & Bower Facsimile edition 1981.
Back cover: Perch. From Eleazar Albin (naturalist, artist and engraver 1690–1742) 1794. *The History of Esculent Fish*. London. www.biodiversitylibrary.org.

Dedication

For Gerald, with thanks, who now knows more about fish than he might have ever wished.

Contents

List of plates

Pre-decimalisation currency (obsolete from 1971)

One pound (£) = 20 shillings (s) or 240 pence (d)
One guinea = 21 shillings
One shilling = 12 pence
One halfpenny = ½ pence
One farthing = ¼ pence

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Foreword

This book grew out of a paper on the social history of coarse angling in England from 1750–1950 (Locker 2014a). The time scale was a small part of a much bigger story of how we have viewed and used 'coarse' fish; in essence obligate freshwater species usually caught by bait not fly. I have deliberately not included a lot of statistical data and tried with varying degrees of success to avoid making it a testament to my unpublished site reports, of which all zoo-archaeologists have far too many. I hope it will appeal to a range of fish enthusiasts. Lots of people in different fields have helped me, perhaps unwittingly, but the mistakes are all mine.

Introduction

Some history, biology, archaeology and science

Animal histories, by default, are told from a human perspective, which often says more about our sensibilities and culture than the animals themselves (Fudge 2002). From the natural distribution of freshwater fishes after the last Ice Age, colonising England through rivers in the land bridge from Europe, their story has been shaped by human intervention through introductions, manipulation and pollution of waterways, land ownership and fishing. Given the large number of waterways it may seem surprising that, from the historic period, marine fish are generally dominant in archaeological fish bone assemblages. Freshwater fishing is a far less risky enterprise and requires less investment in terms of boats and crew than sea fishing. However as an island nation with rich fishing grounds both off and inshore marine fish became increasingly more prominent through time and, from the eleventh century, dominate the fish supply. Herring (*Clupea harengus*), cod (*Gadus morhua*) and other marine shoaling fishes could be caught seasonally in very large numbers and became international business, driving the development of fishing methods to maximise the catch.

The English, despite being islanders with historically major fishing fleets, have never been known as a nation of fish eaters: 'fish and chips' is a relatively recent tradition. The English reputation as carnivores referred especially to beef, which by the seventeenth and eighteenth centuries became a sign of both nationhood and Protestantism (Rodgers 2003, 2, 94). Meat represented masculinity and strength, with no disconnect from the living animal to carcass to meat on the plate. There was no 'boning out' to remove any hint of its origin and sanitise it, as frequently found today. Fish was often portrayed as penitential, though seldom used in penitentiaries, only morally improving. There are references to the tedium of eating fish on Catholic religious fish days, which occupied nearly half the year during the Middle Ages before the Reformation. Salted and dried cod and salted and pickled herring were most common, the intransigence of dried cod tempered by use of the 'stockfish hammer' prior to soaking. Secular 'fish days' restored after the Reformation in Protestant England were economically driven to save meat consumption and encourage the growth of fishing fleets, a 'nursery' for sailors. The landed classes were to 'practise' naval skills in scaled down models of warships for entertainment on their own lakes in the eighteenth century (Felus 2016).

Today, although fish is seen as healthy, we eat small quantities compared to meat and demand focuses on a narrow range, primarily cod, tuna (both have suffered from overfishing) and increasingly, farmed salmon. There is progress on farming cod

and halibut, but at present no likelihood of producing these at competitive market prices. Fish conservation groups and chefs try to promote underused and sustainable species to relieve the pressure on over fished favourites. However, they concentrate on marine or migratory species, there is no enthusiasm to return to pike, perch or any of the carp family found in British freshwater systems. These fish are still eaten in many parts of Europe and cyprinids (the family that includes common carp) are particularly popular in Asia, farmed, in ponds and as part of a dual system in flooded rice fields. Once valuable property in the managed private freshwater pond systems of medieval Britain, the story of their demise as food and rise to prized coarse anglers' quarry reflects changes in English culture.

The early evidence for fish is primarily from bones recovered in archaeological excavation. The smallest bones and bone fragments of fish, small mammals and birds are retrieved by sieving samples from the fills of cultural levels. Until sieving became standard practice fish bones were largely absent in bone assemblages along with other small bones from small mammals, birds and small bones in larger mammals. Missed by hand collection, this often reinforced the interpretation that fish were not present, but the lack of evidence was not tested by sieving at least a sub-sample of a deposit through a series of increasingly fine meshes. A typical example of the small size of much of this material is shown in Plate 1, most of the vertebrae are from eel, but a small pike vertebra can be seen bottom left and a roach pharyngeal, bottom right.

The major bones of the fish skeleton are potentially identifiable to species or at least family level, using reference material for comparison, while ribs, fin rays and fragmented bones may be only identifiable as 'fish'. Plate 2 shows the dentary (lower jaw) and two representative vertebrae from some freshwater fish; pike, perch and two cyprinids: tench and barbel. The skeleton is prepared so each bone is separate for best comparison in identifying often very fragmentary pieces of bone. The predatory nature of pike is evident in the teeth, perch also have a toothed dentary but a larger number of small teeth. The cyprinids have no teeth in the dentary and grind their food against pharyngeal teeth sited in paired pharyngeal bones set in the roof of the mouth (see below). The similarities between the dentaries and vertebrae of the cyprinids are evident, making identification often difficult to species. Measurements of individual bones can be used to reconstruct the length of the fish. Within the increased numbers of fish bones recovered from sites dating to the Roman period than earlier prehistoric sites, a relative increase in marine and estuarine fish is already visible. The European eel (*Anguilla anguilla*) is common, the bones are small and recovered by sieving but distinctive and they have approximately twice the number of vertebrae per fish compared to other species. They were once so abundant and valued they were used as rent payments in medieval times. Pollution and barriers to migration have heavily reduced eel numbers and tastes have changed away from its rich flesh, though it remains popular in sushi. Now eel only holds a small niche market in Britain. The eel is endangered today, a result of over fishing, pollution and blocked waterways. There is a lucrative black market in trading immature 'glass' eels

as far as Asia, a link to its past value as currency. Archaeological finds of salmon (and trout), in contrast, are few, salmonid bones preserve poorly compared to other fish, while documentary data suggests salmon numbers were reduced from early medieval times through reduced water access and quality.

Fishing equipment such as hooks, weights and sinkers sometimes survive. They were made of a variety of materials, with hooks of bone, flint and even thorns in the early periods before metal. Weights for nets were of stone, clay, and later lead, also used on lines. Ancient hooks tend to be non-specific; they cannot be positively attributed to either marine or freshwater fishing beyond inferences based on size. Organic fibres for lines and nets rarely survive outside a waterlogged environment. The remains of wooden fish traps including stakes, wattle fencing and basket traps can survive in waterlogged conditions. While stone traps are very difficult to date based on style, wood can be radiocarbon dated.

Archaeology has increasingly drawn on other scientific disciplines and techniques. The use of carbon dating of organic materials including bone is well established. More recently, the levels of carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) stable isotopes in human bone collagen samples have been used to trace general changes in human diet. They can indicate the importance of marine fish, but consumption needs to be at least 20% to register. The levels of carbon and nitrogen reflect an average of foods consumed over years or decades and are best seen in relative terms. Human bones sampled from different areas and periods have shown dietary changes through time, space, status and gender. Using isotopes to indicate freshwater and migratory fish consumption is more problematic as their carbon levels are very variable overlapping with both terrestrial and marine groups. As fish grow and mature their diet changes affecting their trophic level and habitat influencing isotopic levels. Migratory fish such as salmon have a more marine signal while eel are closer to freshwater, reflecting their different life histories. The method clearly has potential for freshwater fish and these problems should be resolved as this field develops. The method can also be used on mammal and fish bone collagen, in the case of cod to determine their feeding grounds and where they were fished, used in a study on the growth of cod fisheries and their trade (Orton *et al.* 2014). There is comprehensive literature on this topic and the methodology is well summarised by Müldner (2016).

Native obligate freshwater species arrived through freshwater systems to the south and east where the ice melted first at the end of the last glaciation (approximately 15,000 BP) from the Continent via a land bridge. The south and east were first colonised and much of the evidence cited comes from these areas, though the fish are now much more widespread, often through human actions, both deliberate and accidental.

The currently accepted native British stenohaline, or obligate freshwater species, are as follows: brown trout (*Salmo trutta*), grayling (*Thymallus thymallus*), pike (*Esox lucius*), barbel (*Barbus barbus*), gudgeon (*Gobio gobio*), tench (*Tinca tinca*), silver bream (*Blicca bjoerkna*), bream (*Abramis brama*), bleak (*Alburnus alburnus*), minnow (*Phoxinus phoxinus*), rudd (*Scardinius erythrophthalmus*), roach (*Rutilus rutilus*), chub (*Leuciscus cephalus*), dace (*Leuciscus leuciscus*), spined loach (*Cobitis taenia*), stone

loach (*Noemacheilus barbatulus*), burbot (*Lota lota*), perch (*Perca fluviatilis*), ruffe (*Gymnocephalus cernuus*) and bullhead (*Cottus gobio*) after Maitland and Campbell (1992, 47). Pike, perch and some cyprinids can tolerate some salinity, pike up to 10% and can be found in brackish waters.

Trout and grayling (a relative of the trout) are caught on a fly, all the others are now categorised as 'coarse' fish caught on baited lines. This separation has not always been so clear and it is quite possible to catch coarse fish with a fly and game fish with bait, but from the earliest angling manuscripts there is clear instruction as to which form suits which fish. This was to separate anglers into two types, fishing for different species, fly fishers and coarse anglers, which became socially distinct. In the past this divide was less clear and pike were also popular with game or fly fishermen. Pike are the native apex native predators, solitary, long lived and grow large, presenting a challenge to the angler. They prey on a variety of organisms, starting with invertebrates when young small fish, progressing to cannibalism on smaller pike, frogs and other fish (Maitland and Campbell 1992, 172) hence live bait was often used. Perch, once over 15 cm in length, will also feed on small fishes.

From the list above, barbel to dace (11 species) are all members of the Cyprinidae and feed variously on insect larvae, arthropods, crustaceans and plant material. The main species targeted for food and sport were bream, tench, barbel, roach and chub. These can be most easily identified among archaeological fish bones from their distinctive pharyngeal bones, toothed and paired in the upper palate, grinding food against a horny pad. Plate 3 shows examples of the paired pharyngeals: from carp, tench, bream, barbel and roach. Each species has differently shaped individual teeth arranged in differing numbers and rows. Other bones are less distinct between species and often can only be categorised as 'cyprinid', especially when fragmentary, but the numbers of pharyngeal bones give some measure of species abundance. Cyprinids have some differing habitat requirements, but most are found in moderate to slow running waters. Roach is probably the most tolerant species, withstanding low levels of pollution and, with dace, the most commonly identified cyprinid in archaeological deposits. Of the other native species only burbot is now officially extirpated (extinct from Britain but found elsewhere). A freshwater member of the cod family it is very sensitive to pollution and was last recorded in the 1970s (Maitland and Campbell 1992, 263). It is very rare in archaeological fish assemblages and may never have been common.

The evidence shows all these species were once prized and eaten, even the smallest: minnow, loaches and the bullhead, with gudgeon a particular favourite for its taste, still lauded in the nineteenth century. The native fish that remain popular food fish caught in freshwaters today are brown trout, some of which migrate to the sea, known as sea trout, and the migratory salmon (*Salmo salar*), though largely marketed through farmed fish. Rainbow trout (*Salmo gairdneri*) were introduced from North America in the 1890s.

There are currently at least 38 non-native species that have been introduced (Britton *et al.* 2010), but most do not concern us here. The most important and the earliest is the common carp (*Cyprinus carpio*), introduced into managed ponds for food,

in the fifteenth century on current evidence. The status of the crucian carp (*Carassius carassius*) has been problematic, first thought to be introduced it was later regarded as native (Wheeler 2000). That is now in doubt as recent genetic studies support an introduction around the fifteenth century, which could have been deliberate or accidental within a consignment of common carp (Copp pers. comm., Jefferies *et al.* 2017). At present there is only one archaeological example to suggest an earlier date, from Roman Southwark, London, confirmed by the late Alwyne Wheeler (Jones 1978a, 601). However, the bone is no longer available and best regarded with caution although it could have been imported as part of a preserved fish product, common in the Roman period (Jefferies *et al.* 2017). Two other species deserving mention both originated in Eastern Europe. Wels or Danubian catfish (*Siluris glanis*) and zander (*Stizostedion lucioperca*) were introduced in the latter part of the nineteenth century for sport. Wels, zander and carp are all popular today with coarse anglers, but carp has had the biggest impact and is most widespread. However, as with all introduced species there have been unforeseen consequences with potentially negative effects on the native fauna (Gozlan 2008). Adult carp filter mud for invertebrates causing turbidity, disturbing weed growth and muddying once clear waters (Maitland and Campbell 1992, 184). Wels was introduced to the Woburn Lakes (Bedfordshire) in 1880 and is now found in 250 bodies of water (Copp *et al.* 2009, 256), mainly concentrated in the south-east and Midlands. However these populations are not yet self-sustaining. A scavenger, wels can grow very large in the right conditions, taking sizeable prey. There are stories, largely anecdotal, concerning dogs and children. Size is influenced by temperature, for example very large fish are now found on the river Ebro in Spain, a draw for anglers. Wels does carry a viral pathogen that can affect both carp and salmonids, but its impact on native species is judged to be relatively low (*ibid.*). The zander, also called pikeperch because of its similarity to the native predator, was also introduced to the Woburn Estate in 1878 and the Great Ouse Channel, Norfolk in 1963, rapidly colonising other water systems. In its native habitat in Eastern Europe there is a far greater range of prey fish species to support zander, but in Britain it requires monitoring and culling to protect native fish. The ornamental goldfish (*Carassius auratus*) may have arrived in England as early as the late seventeenth century. It is now found in rivers and lakes in the south, especially in Essex, as feral escapes and deliberate stocking for anglers, where it competes and hybridises with crucian carp (Hickley and Clare 2004; Copp *et al.* 2005a, 248).

The common carp, whose wild ancestor is of central Asian origin (Vilizzi 2012), was gradually introduced from Eastern Europe westwards, Roman influence has been posited, but secure evidence places them in ponds in northern France by the thirteenth century. Carp became the first 'domesticated' fish, distinguishable from the streamline wild form (Balon 1995, 17; Vilizzi 2012). Selective breeding has produced varieties with reduced scale patterns: mirror, line and leather, but they are all the same species. Carp were introduced to England to stock medieval store ponds and ousted the native bream in popularity and as store ponds declined carp became popular in ornamental ponds. Their rise in popularity in coarse angling was more gradual, initially described

as rare, a reputation as difficult to catch persisted. It was not until the later twentieth century they became the premier 'celebrity' fish for many anglers. Today carp are considered 'ordinarily resident' and treated as native in consideration of the effects of introduced species (Copp *et al.* 2005a, 255; Brittan *et al.* 2010). The high stocking levels of carp testify to its importance in the angling 'industry' which was judged to be worth three billion pounds a year in the UK in 2010 (Brittan *et al.* 2010).

The medieval introduction of carp precludes it from the early story; the bone evidence for freshwater species before the fifteenth century is from native species. We cannot determine from bones whether fish were caught for sport as there is no evidence for intent, though they are usually found in deposits of food waste such as pits, indicating they were eaten. Rod, hook and line have a long history and can be used for both sport and food gathering, both needs fulfilled by the same action. This combination plus other elements such as floats, weights, flies and bait form the angler's basic tool kit and though good for sport less efficient for fishing for numbers. In river fisheries traps, nets and 'fixed engines' (traps fixed across a waterway) have been employed over millennia. Hook and line may be used, but the aim is to catch as many fish at once as possible, volume rather than individual size. The size of a fish cannot be used as evidence for sport angling, a large fish could just as easily been caught in a river fishery or from a store pond. In the medieval period large pike, carp and bream were deliberately 'grown on' and were a sign of status at the dinner table, or as a gift between the elite.

The separation of sport, or recreational fishing, from fishing for food is blurred. According to the current definition the two are not mutually exclusive. Sport angling, according to the Fisheries and Agriculture Organisation United Nations (2012), can be 'Fishing of aquatic animals (mainly fish) that do not constitute the individual's primary resource to meet basic nutritional needs and are not generally sold or otherwise traded in export, domestic or black markets' (Cooke *et al.* 2017). Although some have taken the view that the definition of sport angling excludes fishing for the table the F. A. O. takes a more flexible view.

The little evidence for angling as a sport in the Roman era is from outside Britain, the documented observations of contemporary writers and is similarly scarce in the Saxon period. As already stated, what is clear from the beginning of the Roman period is an increase in the numbers of fish bones recovered from excavations. There are more sites of this date, increasing the chances of finding fish, but prehistoric sites (outside of specialised northern coastal midden deposits) have yielded very few fish bones as will be shown. This increase supports a change in attitude towards eating fish, especially those most exposed to Roman influence, a cultural change not technological.

The habit of a species, shoaling or solitary, could influence the relative quantities of bones of different species in archaeological deposits. For example, adult pike are solitary predators; some cyprinids may be more solitary as adults but shoal as juveniles; larger fish may be caught on a line while small, immature, gregarious fish can be netted in numbers. Eels used to migrate to freshwater systems from the sea in thousands to mature over a number of years, but numbers are now sadly depleted. The maturing

fish were caught in large numbers in individual traps or series (eel-bucks) set across rivers. Stocked freshwater ponds were a live food store, in which even the predatory pike was kept and their use peaked in the medieval period. As an elite symbol of the landed classes representing perhaps only 2% of the population (Dyer 1994, 102), in terms of the national fish supply they were not very important. Their contribution is exaggerated by their prominence in surviving documentary evidence from monasteries and wealthy houses, while the food culture of the other 98% of the population remains more enigmatic. The bone evidence suggests these fish were not of much importance.

In comparison herring and cod are both marine shoaling fish. Historically herring were always caught in a net while the larger cod were first caught on baited single lines then long lines with multiple hooks and, as fishing gear developed, using nets which became increasingly mechanised and efficient. Cod landings progressively increased with the discovery of new fishing grounds and methods, though success has killed the 'golden goose' in some cases through overfishing. Today line-caught marine fish are associated with sustainability and higher price, as we try to conserve fish stocks, which as late as the mid-nineteenth century were naively described by Royal Commission's investigations in the North Sea as 'inexhaustible' (Cutting 1956, 254). This conclusion overrode evidence to the contrary and voiced concerns regarding the protection of immature fish. The vulnerability of freshwater fish stocks had been recognised from the medieval period with early legislation.

The narratives of freshwater fisheries and leisure fishing are parallel, though the latter has a less tangible early story. In the prehistoric and early historic period the physical evidence is primarily from archaeological finds, part of the bone assemblage together with animal and bird bones. Fish bones can tell us something about diet, fisheries, transportation of marine fish inland and status. The practice of angling has an equally long history, but is only detectable from the few early historical written sources reflecting intent and influenced by an early oral tradition. Decay of organic materials such as lines of hair and wooden rods have left little trace, but by the late fifteenth century it is clear from the first published work on angling as sport that it was long established. It is the changing narrative of obligate freshwater fish in human society that this book seeks to explore.

Chapter 1

Prehistoric mists

Hunter-gatherers – the first anglers?

Although the emphasis is on the historic period, prehistory provides a backdrop to the exploitation of freshwater fish. The British evidence is scant which may in part be the result of poor preservation. There are more European examples, which have been used to illustrate evidence for fishing. Many of the European sites are located near lakes and rivers or in rock shelters and Graham Clark's seminal work (1948; 1952) on Upper Palaeolithic and Mesolithic societies in Europe emphasised the key role of fishing for hunter-gatherers.

Currently the earliest evidence of hominin occupation in Britain is from two sites dated to approximately 700,000 years ago, the Lower Palaeolithic, from the sites of Pakenfield, Suffolk and further up the coast at Happisburgh, Norfolk, revealed by erosion on the beach from the Cromer Forest Beds. The base is known as the 'Cromerian Complex' and lasted about 150,000 years, a period of 'Mediterranean type climate'. The earliest stone tools are relatively crude, but by the end of the period there is evidence from both British and European sites for the use of spears indicating hunting, rather than scavenging dead animals. A later site of this period is Boxgrove in Sussex where fish bones from marine lagoon silts were dated to *c.* 500,000 BP (Locker 1997a; 2000). Eel, salmonids, gadids (cod family) and many bones of three-spined stickleback (*Gasterosteus aculeatus*) were present. The latter is a very adaptable species found in freshwater through to marine conditions. Stickleback, roach, rudd, tench and pike were among the fish identified from Hoxne, Suffolk, dated 350–300,000 BP and associated with 'Lower Industry' stone tools (Stuart *et al.* 1993, 163). There are few other finds of fish bones from Britain in this early period when hominin colonisation was sporadic during warm periods, 'interglacials', until the beginning of the Holocene approximately 10,000 years ago.

The scarcity of Palaeolithic fish remains in Britain may in part be due to a lack of sieving in earlier excavations, before the 1970s, after which it increasingly became

standard practice. Ideally all deposits would be sieved but with budget constraints a compromise is to sample key deposits, wet sieving a measured subsample through a series of decreasing mesh sizes (to at least 1 mm), either on site or post-excavation (Pls 1 and 2). This is time consuming both in the sieving and subsequent sorting to recover material, but vital to retrieve the smallest remains from plants, insects and other organic material including fish and bones from other small species as well as the smallest flint tools. Such is the rarity of Palaeolithic sites that all deposits, especially in caves, may be sieved to at least a coarse mesh size, and subsamples through a fine mesh.

The evidence for freshwater fish in the diet of early hunter-gatherers increases in the Upper Palaeolithic, spanning approximately 45,000–10,000 BP following the French cultural divisions. Fish also feature in early art, notably from south-west France on cave walls and ceilings (parietal art) and as mobile pieces on bone and antler. The importance of fish both in the diet and culturally in this area is clear in Cleyet-Merle's study (1990) of prehistoric fishing and includes a depiction of a salmon impaled on two projectiles of Magdalenian date from Gourdan Cave in south-west France (*ibid*., 63), an area noted for Palaeolithic archaeology. Salmonids (salmon and/or trout) were the most commonly featured fish species, with 47 examples of mobile art from 37 sites, pike are second with six, and eel third with two (*ibid*., 173). More recently examples of Magdalenian date have been found, possibly depicting cyprinids.

In Liguria on the Italian coast, near the border with France, the Grimaldi caves, just above the shoreline, contained a series of burials of Gravettian date (23,000 BP), discovered in the nineteenth century. The bodies had been decorated with shells (*Cyclope neritea*, a sea snail found in the Mediterranean sub-littoral zone) deer incisors and one necklace with a number of perforated salmonid vertebrae (Formicola and Holt 2015, 77). The nearest source of salmon would be the Atlantic coast of south-west France and this was first thought to be an example of long distance trade and exchange, but more recent x-ray examination revealed these were large trout. Their size suggested they were a possible Pleistocene relict sea trout from inland refugia (Wilkens 1995). Neither sea trout nor salmon are found in the Mediterranean today, it is too salty. In north-east Germany a deposit dating to 12,300 BP included five fishhooks of bone and one of subfossil mammoth ivory (Gramsch *et al.* 2013). The latter was dated to 19,000 BP, the Last Glacial Maximum, and mammoth were extinct by 14,000 BP. Freshwater fish faunas from Central Europe are dominated by salmonids during the late Upper Palaeolithic, suggestive of seasonal fisheries. This changes to pike, chub and perch in the Final Palaeolithic, with pike the most common species recovered in the Early and Late Mesolithic (*ibid*., 2461). Fishhooks may have been first developed at the end of the Palaeolithic, evolving into a Mesolithic fishhook tradition. The importance of fish in art, culture and food in the Palaeolithic is evident across Europe: angling with lines of fibre or hair and improvised hooks or gorges made from bone, antler, thorn and wood, though the lines and latter two materials rarely survive. Gorges may have been the first method to ensure prey could not escape after

swallowing the bait, pre-dating the hook and also used for birds and larger animals (von Brandt 1984, 70). Angling may have a source of both pleasure and plenty in months of abundance.

Crafted hooks were the first tools specifically designed for fishing (Morales Muniz 2010, 41). They continued to be made from traditional materials of flint, shell, wood and antler before metal (in the Bronze Age) was in use or common enough to be used on utilitarian items that were easily lost. Up until the mass production and standardisation of metal hooks in the nineteenth century, hooks were adapted from wire or a pin, or bespoke, made at a forge. A line was tied to a simple rod, often a naturally straight pole of hazel, favoured for its flexibility. The survival of these and tools for 'passive' fishing, such as traps and nets and other organic material, is usually dependent on waterlogged or peaty conditions and some have been revealed at low tide as on the Thames foreshore. Carbon dating of the wood from the latter has revealed dates ranging from the Bronze Age continuously through to the post-medieval periods (Cohen 2011). Stone traps are difficult to date as they have a long history of simple and unchanging design.

Through the Palaeolithic period stone tools became more refined and smaller; tiny bladelets and small flint tools termed 'microliths', were used in series, hafted into wood to make a serrated edge, secured with tree sap. Target species also changed, smaller animals and birds were hunted in the Upper Palaeolithic, large prey were more common in earlier periods. Midden deposits of marine fish bones and shells have been found in coastal areas of Britain and northern Europe from the later periods. During the Mesolithic in Britain (around 10,000–5000 BP) middens, most common in Scotland, reflect the seasonal importance of marine fish to hunter-gatherers. On the island of Oronsay, off the west coast of Scotland, the main fish present were saithe (*Pollachius virens*) a gadid and analysis of growth rings in their otoliths (a calcareous body in the inner 'ear') confirmed seasonal occupation (Mellars 1978). However these represent episodes of food gathering along coastlines. There is scant evidence for catching freshwater fish inland in Britain either from fish bones or traps or lines in this period. Has no evidence has survived or does it reflect a true absence? There are plenty of Mesolithic 'sites' identified from scatters of stone tools but little other evidence.

The site of Star Carr, North Yorkshire, a Mesolithic lakeside settlement, is an interesting case in point. Excavated 1949–51, no fish bones were found, but there were many barbed points and a harpoon of red deer antler, that could be associated with fishing or fowling. Other evidence from Northern Europe suggests seine nets and hooks were in use and floats made of bark (Clark 1948). Clark concluded that there were no fish, in particular pike (though found in quantity at contemporary European sites), because the lake was not fished in summer. However, he later describes pike as being caught all year round in the Baltic region (1952, 45). Wheeler (1978a) rejected this seasonal interpretation, suggesting it was difficult for fish to colonise the Lake Flixton Basin due to rapid water flow. However recent excavations have recovered a

small number of fish bones from core samples of lake deposits and peat samples from three newly excavated areas. The 15 fish bones all showed evidence of burning, apart from a perch scale. Pike, perch, cyprinid and a possible salmonid were identified. In addition two flint tools showed microwear traces associated with fish processing. The conclusions from this ongoing research were threefold. Clark did not find fish remains because he did not sieve. Fish bones may only have survived because they were calcined (possibly the remains of fish processing outside a building on dry land). Thirdly the acidity of the sediments has increased since 1950 and is detrimental to bone survival. In addition only 5% of the site has been excavated (Robson *et al.* 2018). Thus modern excavation techniques have started to solve the decades long debate 'why were there no fish at Star Carr' and the reason is not cultural.

Another important Mesolithic site at Blick Mead near Stonehenge in Wiltshire, recently excavated, is very rich in stone tools, some very small, but has to date only produced one fish bone. Also calcined, this was tentatively identified as a salmonid vertebra, burning may have aided its survival (Parfitt 2014, 21). In this case the absence of fish bone is not attributable to a lack of sieving, but preservation conditions may play some part.

Fishing was clearly part of the Mesolithic hunter-gatherer lifestyle, despite some questions over the paucity of evidence in Britain in a freshwater context or specialised coastal deposits. Supportive proxy data in a pre-literate society includes art, isotopic analyses of human bones, grave goods and evidence from contemporary sites. Although the British evidence is poor, European examples include freshwater fish bones in settlement contexts, isotopic analyses of human bone collagen and from burials where freshwater fish have been found as either stomach contents or possible gift offerings as a stew, for example at the Mesolithic cemetery at Skateholm, Sweden (Jonsson 1986). In other Mesolithic burials freshwater fish bones have been found used as jewellery; pike vertebrae as beads and cyprinid pharyngeal teeth used as ornaments on belts and headdresses. Many of the latter are from the areas around the Upper Danube and some pharyngeal bones were notched or perforated (Grunberg 2013). In Serbia, by the Lower Danube Gorges, Late Mesolithic graves contained individual cyprinid teeth, some of which had been perforated or notched at the root. The teeth were large and the authors propose two roach species (*Rutilus meidingeri* and *R. frisii*), the latter can reach over 60 cm total length and weigh over 8 kg. *Rutilus rutilus*, the most common and widespread roach species and the only roach native to Britain, averages 35 cm and 250 g. Analysis of residues on the teeth indicated the presence of ochre and tendon tissue that may have been used to attach the teeth to clothing. The teeth were found mostly in the area of the pelvis or the skull. The dominant use of these teeth as decoration compares with contemporary sites in the Upper Danube, where both cyprinid teeth and those of mammal species are used, they evidently all have symbolic meaning (Cristiani *et al.* 2014). Grunberg (2013) noted that where subsequent Neolithic practices retained a hunter-gatherer lifestyle, animal bones continued to play a role in burial practices. However, there is

little evidence of this from mainland early British Farmers, supportive of immigration rather than a continuum evolving into settled farming.

Early farmers – archaeological evidence for fish, from bones, residues and isotopes

The onset of a more settled pastoral and agricultural lifestyle in the Neolithic brought cultural change. The pace and nature of the transition has been and continues to be the subject of debate as to the degree of immigration and acculturation. Mesolithic peoples were already adept at using boats, at least round coastlines, and Neolithic migration would have also been facilitated by skin covered boats or hollowed logs used across larger stretches of water in order to reach Britain. The change to agriculture was not sudden and the transitional process from hunter to farmer is now estimated to have taken place over some 350 years starting around 4000 BC. Pottery, domesticated animals and plants were brought from Europe, with migration by large and or small groups of early farmers to and within Britain. They maintained continental contacts and trade, seen, for example, in the origin of some stone axes. The degree and transition to adoption to this sedentary lifestyle by the 'indigenous' population is still unclear, but by the later Mesolithic hunting/foraging groups are thought to be have become increasingly sedentary. Settlements were not uniform and regional differences are seen in building styles both domestic and funerary (Catling 2017a, 23). Unresolved questions remain over the rate of change – was it very gradual with staples of Mesolithic life only gradually replaced, in a cycle of semi-nomadic clearances? Was early crop cultivation a failure, or minimal, as has been suggested from the typology of querns of the early period, with an increasing reliance on animal husbandry (Catling 2014, 24).

Whatever the background to the Neolithic the scant fish bone evidence suggests neither freshwater nor marine fish were a valued resource in Britain. A review of animal remains from the Neolithic and Early Bronze Age of southern Britain found very few fish bones despite sieving deposits at more recently excavated sites (Serjeantson 2011). Fish were recovered from only eight of 205 sites, with few species; eel, pike, trout and a cyprinid bone: in all 34 bones, of which 11 came from a single trout. Excluding the latter, pike was the most numerous species (*ibid*., 47). Bones from large pike were found from excavations at Runnymede, Surrey (Serjeantson *et al.* 1994). Of Neolithic date, in addition to two pike skull bones and a salmonid vertebra, carbonised residues of marine oils were found on the inside of two potsherds, though it cannot be determined if these were from marine fish, fish-eating birds or marine mammals. Three salmonid vertebrae were found in Late Bronze Age levels, one of which was perforated, perhaps for ornamental use, together with nine pike bones and a single cyprinid vertebra. Pike were also found in a Middle Neolithic human burial at the Eton/Dorney Lake excavations, Berkshire (Serjeantson 2011, 78). A rare find of fish in prehistoric burials in Britain, it suggests large pike may have been of cultural

significance and targeted, perhaps representing strength from its predatory nature and possibly has some connection with the practices of the European evidence cited above. Large pike were also found at two sites near the River Witham in Lincolnshire, of Late Bronze Age date at Washingborough and Iron Age by a trackway at Fiskerton, these were rich areas for fisheries. However, at both sites (studied by the author) these deposits may have been a natural accumulation so while they are evidence for the presence of large pike, they do not necessarily have any cultural significance.

The scant evidence for fish in this period in southern Britain led Serjeantson to conclude that freshwater fish were largely ignored. Freshwater mussels, which ought to have been common in the unpolluted freshwaters of that period, were also absent (*ibid*., 49). The avoidance of water as part of an ancestor taboo is something that has also been posited for the Iron Age. The relative prominence of large pike could signify some status as a top predator among freshwater fishes. Evidence from the animal bone assemblages from the early and Early/Middle Neolithic support the presence of new people rather than a transition to pastoralism and agriculture in southern Britain by existing hunter-gatherer Mesolithic populations (Serjeantson 2014). The animal bones show no evidence for continuity from the Mesolithic and non-domestic animals were generally few. A small number of wild mammal bones did occur in the majority of sites, most commonly red deer with adult males preferred for their antler and skins, raw materials being prized over meat (Serjeantson 2011, 91, 93, 41). While acknowledging that wild mammal bones could have been consumed and disposed of elsewhere, it is suggested hunting had become primarily a specialised event to prove skills. This previews medieval hunting on horseback with dogs through to fox hunting in the nineteenth century as a way for the elite to practice horsemanship for war.

The use of isotopes extracted from human bones to provide evidence of diet has been used to help resolve questions on the Mesolithic–Neolithic transition. Recent analyses of human remains of Mesolithic and Neolithic date in Britain and Ireland at the point of transition supports a general move away from marine foods in the Early Neolithic (Schulting and Bović 2017). Individuals buried by the coast or on Scottish islands show little evidence for marine foods in their diet and a reliance on terrestrial foods, with animal bones assemblages suggesting these are domesticates. There is also little support for freshwater resources playing any significant role. This is not to say there were no fish eaten, or any regional differences but overall they were of little significance. A re-analysis of a bone sample from the west coast of Scotland previously assessed as representative of a wholly terrestrial diet, but using a new method, did indicate a marine component. This Bayesian mixing model (Food Reconstruction Using Isotopic Transferred Signals, acronym FRUITS) separates marine signals from shellfish and fish, which in this case indicated perhaps a 20% contribution, mostly from shellfish (Bownes *et al*. 2017). This does not invalidate a change to terrestrial diet in the Neolithic, but presents a more nuanced picture, which will evolve as the methodology develops. There is some genome sequencing evidence to support the immigration theory, with one individual from Ireland being of Near Eastern origin.

Other recent work in this field supports an Iberian origin for Neolithic peoples in Britain, while people associated with Bell Beakers, were of a Central European origin (summarised in Krakowka 2018). The advances in these techniques have and continue to refine the history of the peopling of Britain, which for prehistory in particular was once reliant on comparing material culture from other areas.

European examples of a change away from fishing in the Neolithic include the site of Vela Spila on the Adriatic coast of Croatia. Fishing had been an important part of subsistence in the Mesolithic, but in the Neolithic it was reduced to an opportunistic activity and, with the introduction of sheep and goats, fish became a minor resource (Rainsford *et al.* 2014). Another continental parallel comes from the Balkans, from the site Lepenski Vir (modern Serbia) by the Danube Iron Gorge. In an area where in the Late Mesolithic fish had been important both as food and as decoration, in the Early Neolithic (*c.* 6300 BC), isotope analyses showed a reduction in fish consumption for at least some people. Of the same date, carved boulders with human/fish like faces are placed in burials and in buildings and it is suggested this may represent human metamorphosis into fish and part of a fish taboo (Boric 2007).

Hunting as a ritualised activity in later prehistory in Britain has also been explored by Lewis (2009) who views the Neolithic landscape in continuity, heavily influenced by past hunting practices, following on from the 'sedentary hunter-gatherer lifestyle of the late Mesolithic'. He suggests a continuance of ancestral ties to hunting grounds for millennia as a way for the elite to appropriate land from the Neolithic onwards (*ibid*., 97, 98, 108). This lays more emphasis on evolution rather than immigration of farmers in the Neolithic and is problematic in explaining the abrupt change in animal bone assemblages to domestic species. The two may not be irreconcilable, with aspects of continuity absorbed into a developing agrarian landscape. However a progressive 'privatisation' of land ownership in the Neolithic would have been part of the process of establishing land boundaries for sedentary agriculture and pastoralism, perhaps restricting access for both hunting and fishing. This process was to accelerate from the medieval period, ultimately contributing to the social division between game and coarse anglers in the nineteenth century.

Putting aside the origins of early farmers of prehistoric Britain bone evidence shows that, through time, they came to rely less on hunting and fishing as a significant food resource. Over 1000 years or so they became dependent on domestic animals and grains. This may have been culturally driven, tied to some taboo. There is evidence that the transition of society from hunter-gatherer to predominantly agricultural was one in which, for a significant period of time in some places, the two co-existed until settled agriculture and pastoralism became predominant. Research from Germany on human skeletal material from Blatterhohle Cave near Hagen indicates hunter-gatherers were present around 5000 BP, alongside farming populations. Isotopic analysis of human bone indicated that each kept distinctive lifestyles, showing high levels of freshwater fish in hunter-gatherers and high grain and meat levels for farmers (Bollingo *et al.* 2013).

This evidence supports the premise of some aversion to freshwater fish among the early British farming communities. Similar results to the isotopic evidence from Germany have been found in human bones from Britain. These also show a clear contrast in diet from moderate to strong marine isotope signals in Mesolithic individuals to a strong terrestrial signal in Neolithic individuals indicating a marked dietary change with new farming practices (Richards *et al.* 2003), favouring the Neolithic immigration theory.

Analysis of fatty acids and lipids preserved on the insides of Neolithic cooking vessels of early farmers in the north-east Atlantic (primarily the Western and Northern Isles of Scotland and the Channel Islands) indicated a terrestrial diet despite the ready availability of marine products. Fishing was replaced by dairying by the earliest farmers on this coastline despite being well positioned to exploit marine resources (Cramp *et al.* 2014). The data support a distinct change away from the dominant role of marine fish in the Late Mesolithic (4600–4300 BC), to barely visible in the Neolithic (by 3800–2200 BC). There was a small recovery in the Bronze and Iron Ages (2200–800 BC and 800 BC–AD 800). There is no Roman occupation in these locations, hence the extended Iron Age. A further increase in marine fish was seen in the Viking period (AD 800–1400) with growth in deep-sea fishing and trade. While this evidence refers to marine fish, the evidence from other British mainland sites suggests fish generally were unpopular from the Neolithic onwards.

Few Bronze Age fish bones have been recovered inland, apart from the pike, salmonid and single cyprinid vertebra from Runnymede referred to above (Serjeantson *et al.* 1994, 335). An area with the potential to fill some of this gap is the Cambridgeshire Fens, where excavations at Must Farm (by Cambridge Archaeological Unit) are currently revealing unparalleled preservation of wood in waterlogged conditions. The remains of Late Bronze Age boats, huts on stilts and their contents (the huts appear to have collapsed *in situ*, abandoned in a sudden fire) have led this site to be dubbed 'Britain's Pompeii'. The wealth of preserved organic material includes fish traps and bones of pike, perch and smelt will add to our knowledge of freshwater fishing in this period. Other excavations of the same date in the area have also yielded some bones of freshwater fish, in a region that was a haven for wild fowl and fish before the successive water management of the medieval period and drainage, which culminated in the nineteenth century.

Some specialist later prehistoric communities continued to exploit marine fish in the far reaches of Britain. Island dwellers in northern Scotland include Iron Age communities who targeted seasonally inshore shoals of immature saithe (a member of the cod family) at Howe, Stromness, Orkney (Locker 1994a). In the south, prehistoric communities on the Isles of Scilly, from the Late Bronze Age onwards, at Little Bay caught marine fish (Locker 1983). The marginal nature of farming on some of these islands made fishing vital and the combination of small scale farming (or crofting) combined with fishing remained a common way of life until relatively recently.

Isolation in remote areas might in part be thought to explain these lifestyle differences. However recent work by the Stonehenge Riverside Project at Durrington

Walls, Wiltshire, based on isotopic analyses of strontium and oxygen in cattle teeth to determine their origin, has shown that Stonehenge attracted people in the Neolithic bringing cattle from far beyond the local region. At least 80% of cattle were reared off the local chalk, and may have come from Devon, Cornwall, the north of England and possibly Scotland (Chan *et al.* 2016). This suggests that differing practices did not result from cultural isolation but that the marginal nature of some areas for farming necessitated a combination of fishing and farming. Nevertheless, across much of England, maturing eels would have been in large supply and from the Roman period onwards they are often the most numerous representative of freshwater or estuarine fisheries, yet there is little evidence for them from prehistoric sites.

A study of Iron Age sites in England with animal bone assemblages, by Dobney and Ervynck (2007), assessed the data from 117 sites; only 10% produced fish bones and these were small in both numbers of bones and species. They noted that most of the Iron Age sites are inland, limiting the understanding of marine fisheries and trade at that time, but freshwater fish are equally scarce. Poor recovery of small bones does not explain the paucity of fish bones from the Iron Age as small mammals and birds as well as botanical material have been recovered (*ibid*., 404).

The scarcity of fish is echoed in Iron Age sites in Belgium, but they are more common in the Netherlands (*ibid*., 409), which may be due to regional cultural differences. Low fish consumption, marine or freshwater in the pre- Roman British Iron Age has been confirmed by isotopic analyses of human bones of Middle Iron Age date from sites in East Lothian, Yorkshire, Hampshire and Cornwall, none of which showed fish as a significant dietary component. The sites on the coast: East Lothian and Cornwall and the Hampshire sites near river, estuary and the sea do not suggest aquatic foods eaten in any quantity and actual fish bones were very few (Jay and Richards 2007).

Cooking methods

For cooking fish methods would have been basic; roasted on a skewer (wood and, from the Bronze Age, of metal), boiled, either in water heated with hot stones or over a fire, roasted in embers, or buried in the ground wrapped in leaves and covered with hot stones. The only evidence for cooking is from charcoal remains and fire crackled flints before the Neolithic, when ceramics were introduced as cooking vessels and the Bronze Age, when metal pans or cauldrons could have been used for cooking fish.

Angling

There is no evidence that angling as 'recreation' was practised or understood as such in Iron Age or earlier society in Britain. However, there is one piece of European evidence it may have been a 'princely' occupation in the Late Hallstatt/Early La Tène Iron Age in Germany. A rich burial at Hochdorf near Stuttgart included three fishhooks in a

bag, which could have hung around the deceased's neck (Cleyet-Merle 1990, 164). The richness of the burial mound construction and its contents reflect no ordinary angler. The hooks were important enough to have been included as princely personal grave goods along with a quiver, arrows and rich funerary furniture including wagons, horses and metal table ware, one of which was a Greek cauldron. This rare example suggests a place for angling among the elite in late prehistory on the European continent but has yet to be matched by any English evidence.

Conclusions

The limited evidence for freshwater fish from Mesolithic sites in mainland Britain could be interpreted as indicating a fish aversion was already in place before the Neolithic. However, unlike Neolithic sites which are both more numerous and substantial with remains of settlement and rubbish disposal, evidence for Mesolithic hunter-gatherers is comparatively less, often restricted to a scatter of flints. The limited evidence we have, linked with the continental data, supports freshwater fishing as part of their lifestyle which leading up to the change to farming became more sedentary. Under a Neolithic tradition of farming and more permanent settlement and stimulated by some immigration bringing new ideas, hunting and fishing in a mainland setting gives way to a reliance on domestic species, for both general consumption and feasting. The limited numbers of fish bones and the abundance of domestic mammal bones together with the negative evidence from isotopic analyses of human burials reinforce the premise that fish were not generally a food resource from the Neolithic onwards in mainland Britain. The absence of fish bones may in part be a reflection of a lack of sieving in some cases, but it does not explain such a widespread absence. The new farming communities concentrated on domestic animals and crops.

There are exceptions with Neolithic fishers in more remote islands but on the mainland there are few coastal Neolithic, Bronze Age or Iron Age sites. Many may have been destroyed by rising sea levels, in which case negative evidence is not necessarily absence of marine fishing. However, there is little evidence for the exploitation of freshwater fisheries from inland sites, either by choice or taboo, outside of wetlands rich in waterfowl and fish. Must Farm, Cambridgeshire, described above, has both fish traps and fish bones from Bronze Age levels and discarded weapons of both Bronze and Iron Age date supporting the premise that water also had special significance. The two Iron Age 'lake villages' at Glastonbury and Meare (Somerset), then set in a much wetter environment prior to medieval water management, were excavated at the end of the nineteenth and beginning of the twentieth centuries when the focus was on the recovery of cultural rather than environmental remains and no sieving was carried out. The absence of fish bones or fishing gear may be genuine or more likely reflect interest and excavation methods of the time. Unfortunately there are no human bone remains from these particular sites for isotopic analysis, but people

who choose to live near or on an extensive areas of freshwater would be unlikely to totally abandon fowling and fishing and ignore such a rich food resource.

On the whole farmers are focused on terrestrial, largely domestic products. The medium of water is not generally seen as part of food production other than watering crops and livestock and, as we know from surviving wooden boats, for transport. Water also has some significance for the disposal of valuable weaponry of unknown cultural context, which has been described as 'ritual', a word that archaeologists use with caution. This general absence of fish remains consistent through to the end of the Iron Age until the Roman period when the picture becomes more mixed.

Overall the faunal mammal bone evidence to date supports a cultural change through some level of immigration to Britain by early farmers during the Neolithic, which continued through Bronze Age immigration and the Iron Age, confirmed by genome sequencing of human bones. This fish 'avoidance' could be part of a taboo on freshwaters, where 'votive' objects were deposited. As well as high value metal work found in waterlogged or bog deposits, the 'bog burials' have been recovered in modern day peat cutting where the bodies naturally 'mummified' by tannins. The British examples are mostly of late Iron Age to early Romano British date and some reveal evidence of execution in common with similar European finds in Scandinavia and elsewhere. These wetland areas have long had symbolic uses beyond fowling and fishing.

Chapter 2

AD 43–400+. 'What did the Romans ever do for us'?

From the beginning of the historic period far more evidence has been recovered in terms of fish bones and associated material culture (including fishing equipment and landscape features such as ponds and moats) than from prehistoric contexts. Some fish, either in their own right, or in their setting (private ponds) represented luxury, 'irresistible objects' as defined by Robb (2015, 172). They were part of a visible display valued by size, rarity and symbolism, showing superiority evoking comparison and desire. Fish kept in an enclosed body of water either for decoration and/or as a food store in the Roman world were an elite symbol of power and private ownership. The growth in the privatisation of land limited access through birthright, invitation, purchasing power or employment. In prehistory territorial rights or priority access for groups of hunter-gatherers and designated areas of farmland from the Neolithic onwards were proto-forms of privatisation, which would have affected access to freshwater fish, though as we have seen they appear to have been a minority interest with the onset of farming.

The landscape of Late Iron Age Britain was one of farmsteads, groups of roundhouses and larger settlements, *oppida,* which defined territories; many were the origins of later Roman towns including Silchester, Colchester and St Albans. Late Iron Age society functioned with coinage, skilled craftsmen, technology, manufacturing and traded with the continent. The age of the hillfort was essentially over. Much of the material evidence is concentrated in the south and south-east but there is increasing support for similar progress in the north of Britain (Mattingly, 2007, 54–64). The Roman invasion of AD 43 and conquest phase that continued to around AD 83 (*ibid*., 97) followed an earlier attempt by Caesar in 55 BC, which, though unsuccessful in subjugation, did establish a client status, particularly in the south-east. This was a thin veneer; beneath the new political alliances of the hierarchy Britons were secure in their culture and customs, engaged with overseas trade and, despite accessible

coastlines and abundant freshwater systems, generally ate little fish according to the archaeological and isotopic evidence.

The concept of watery places as being sacred was part of both Roman and prehistoric culture. In some existing shrines Romans substituted their own gods, as at Bath, replacing earlier Celtic deities. Many pagan cults were later adopted and rebranded by early Christians, water being symbolic of rebirth through baptism. Springs were believed to mark the sites of miracles and often dedicated to Christian saints. The rebranding of 'pagan' shrines was also deliberate policy by the early Christian church made clear by Bede's reference to a letter from Pope Gregory to Abbot Mellitus who was on his way to Britain (McClure and Collins 1999, 57). However, neither Roman nor Christian beliefs proscribed the eating of fish despite their association with water. In Celtic myth salmon and trout were associated with sacred wells and wisdom, particularly in Irish and Pictish legend; salmon were represented feeding on hazelnuts from the tree of life (Ross 1967, 350). Other species found in freshwater do not feature in this context apart from a few references to eel.

The Greek and Roman origins of attitudes to fish were both positive and negative. According to Beer (2010, 54) although fish were significant as food and in culture there is evidence for food avoidance in 'Graeco-Roman cultural self definition', which may have links to a fear of fish in Egyptian and Syrian tradition (*ibid*., 58). Syrian fish avoidance was part of worship to the goddess Atargatis, whose cult featured fish (Davidson 1998, 288). Taboo was twofold; linked to fear of the sea, where fish could threaten seafarers and eat human flesh, and fish as a symbol of luxury and lax morals. In Homeric poetry heroes ate meat, from the same species sacrificed to the gods, though not the same parts used as offerings. Fish were not used in sacrifice and a study of bones from Roman temple sites in Britain revealed no fish in a sacrificial context (King 2005). In the later Greek republic fish were seen as a sign of ostentatious living. Archestratus (a Sicilian Greek) in *The Life of Luxury* (dated to around 330 BC) writes about fish and seafood generally, but nothing specifically about freshwater fish (Wilkins and Hill 1994). Romans were initially fish averse but they were to become a status symbol among the elite (*ibid*., 63). Accounts of a moray eel wearing earrings; kept in a pond and came when called; and ostentatious banquets serving expensive large fish, are all well known aspects of wealthy Roman life, as well as the infamous fish sauces. Juvenal, in his fourth *Satire*, describes a large turbot brought to the table of the Emperor Domitian in the first century as an example of his tyranny (Davidson 1998, 288). Freshwater fish seem to have been inferior, cheaper and a food for the poor.

The presence of Roman troops and civil servants based in Britannia may have been influential in encouraging the consumption of marine and also freshwater fish. The bones of marine species, often those found off parts of the British coastline as well as in the Mediterranean, such as mackerel, sea bream and bass, have been found on many sites. Obligate freshwater species usually form only a small proportion of assemblages, even inland.

Most of the country remained agricultural, continuing essentially in an Iron Age tradition. Recent research suggests that in the second century up to 90% of the population lived in the countryside, of which villas only constituted around 1%. Villas have always attracted excavation, an elite form of country living they are well known and have had a higher profile than other forms of rural settlement. Cultural changes emanated from villas, forts and growing 'Roman' towns, often sited on the footprint of earlier *oppida*, which became centres of new fashions in food and cuisine. These would have percolated through society especially the aspiring native hierarchy.

Roman civilian settlements fall into categories of importance. Those of highest rank were *colonia*, early examples are Colchester, London and York, and both Colchester and York began as legionary fortresses. *Colonia* were chartered towns of Roman citizens operating under Roman law. *Civitates* (singular *Civitas*) were the chief towns of an area or people, more numerous, they were of lower status. Villas were country houses with estates/farms either evolved from a native settlement or new builds, owned by high ranking native Britons, or Roman officials and often near a major centre. Rural settlement is more difficult to categorise and has recently been the subject of a wide ranging project. The classification of sites is complex with revised typology of farmsteads often limited by a restricted area of excavation, what criteria constitute a villa and the different forms of roadside settlement (Allen and Smith 2016). Rural 'native' sites, which have not yielded a lot of fish bones, are now the object of more investigation than they were in the past, 80% of the 1866 farmsteads included in the project were excavated after 1990 (*ibid.*, 20). Often isolated, these sites were least likely to show Roman influence.

Foodways and cooking

Roman military forces comprised many nationalities introducing a 'multicultural' mix into Britannia and a dietary change is reflected in animal bone assemblages where the Iron Age dominance of sheep changes to an increase in cattle and pig. The increased consumption of beef and pork post-conquest is most evident at urban, military and legionary sites (thought to be Gaulish and Germanic influences) and least at rural settlements (King 2005, 331). This ties into the continuance of Iron Age traditions away from towns and forts.

In the Roman period a whole range of cooking and serving utensils: metal frying pans, ceramic mortaria (shallow wide vessels), cooking pots and fine samian table ware, all previously unseen in Britain, have been recovered by excavation and would have been a sign of upward mobility in Roman and Roman influenced households and 'urban' areas. Certain flat round dishes are thought to have been for cooking flatfish. Cooking methods were becoming more sophisticated. Changes in foodways are also seen through imported goods, including olives and the infamous fish sauces made in industrial quantities in the Roman provinces, particularly Spain, but there were also local British made versions (Bateman and Locker 1982).

These changes suggest Roman influence was pivotal in the reintroduction of a culture of fish eating in Britain, albeit localised, which had been largely lost since the Mesolithic and evidence of expression of identity through food. Aspiring native Britons followed Roman fashions in architecture (a substantial number of villa sites show Iron Age origins), clothing, jewellery and food. The contemporary documentary data for fish in Roman cuisine centres on marine fish. The work of *Apicius*, the cognomen of several gourmets, whose collective recipes date from the first–fourth centuries, titled *De re Coquinaria* (or the *Art of Cooking*), includes sauces and how to cook marine fish such as tuna, grey mullet, sea breams and ray (Solomon 1995, 128). There is a reference to 'eel' with a recommended sauce of lovage, pepper, dates, and honey. A sauce for grilled conger eel, a species also found on the British coastline, included pepper, lovage, cumin, oregano, dried onion, boiled egg yolks, wine, vinegar and fish sauce. Spices such as cumin and coriander were commonly used and there is a mix of sweet ingredients such as honey, dates and raisins in savoury sauces. There are a few general references to salt fish or fried fish, but no mention of their species (Flower and Rosenbaum 1980). In *Apicius* there is no evidence for a specific cuisine or interest in freshwater fish; marine were higher status.

Evidence from human bones

As already described, isotopic signals in human bone have become a useful tool in determining human diet. They have added to the evidence for fish consumption and the relationship between fish, status and Roman influence in Britain. One of the first isotopic analyses of Roman skeletons in Britain was from the cemetery at Poundbury Camp, near Dorchester, Dorset (a *Civitas* capital). These showed no marine values for the Late Iron Age to early Roman period, but burials of later Roman date indicated an increase in marine values among higher status burials (Richards *et al.* 1998).

Analyses of three burial groups from Roman Gloucestershire (Gloucester was a *Colonia*), one urban and two rural cemeteries, indicated that the urban population had the highest values for protein and seafood, though within that group bones from a mass grave had lower readings than individual burials (Cheung *et al.* 2012). Were they of rural origin, poor or fish averse? These findings support greater fish consumption within urban areas, more influenced by Roman culture, while rural areas may have had less access to elite foodstuffs or preferred to retain an Iron Age tradition, which did not include fish. However nuances show within communities. A group of 82 inhumations from rural Oxfordshire were analysed for sulphur isotope ratios as an indicator of freshwater fish consumption. They showed variability with some favouring terrestrial diets and others more fish based. Bones analysed from children's burials suggested those of weaning age (2–4 years) had a more fish based diet than those over 8 years, whose diets were more terrestrial (Nehlich *et al.* 2011).

Isotopes were analysed from 77 human burials from 12 sites in Dorset. The Late Iron Age burials showed no sex related differences and the diet was heavily terrestrial.

The Romano British burials had some enriched isotopic signals but did not show a widespread increase in marine resources, which were more visible in female burials. Urban samples did not show more variety than rural ones, and the conclusion here was that Roman influence on diet was not reliant on proximity to a *Civitas* capital but more influenced by social differentiation, food access and new and existing dietary patterns (Redfern *et al.* 2010).

Recent work by Müldnor (2013), from 14 sites with burials, mainly in the south but also from West Lothian, Scotland, identified an increase in marine foods, changing from a trace signal in the Iron Age to a small but present signal in the Roman period. A small isotopic change indicates a significant change in diet, therefore supporting a marked increase in marine fish consumption for at least part of the population. Three possible causes are suggested: the adoption of Roman cultural values, gender specific dietary practices and migration. While the general trend is for increased fish eating as a Roman urban/elite phenomenon the variation in isotopic readings show a more nuanced picture, but mainly refers to marine fish. The methodology to determine obligate freshwater fish is currently less reliable and the fish bone evidence remains a key source of data.

Archaeological fish bone evidence

The greater number of fish bone assemblages of Roman date than from the preceding Iron, Bronze and Neolithic Ages comprises a large sample about which both generalisations and specific points can be made. In relation to a temporal change from prehistory, collating the number of Middle and Late Iron Age and Roman sites suggested a rise through time in both the number of known sites and the number from which fish were recovered (Allen 2011, 560). However, not all sites had been sieved thus small bones, including fish, would have been missed, so the rise in numbers of fish bones should be regarded as the minimum.

Analysis of the fish from over 100 Roman sites yielded 8500+ identified bones (Locker 2007) and indicated broad regional differences. Comparing species that could be caught in freshwaters such as pike, cyprinids, perch and the migratory eel and salmon against marine fish, the effects of location were evident. From north to south there is a clear decline in the contribution of freshwater fisheries from over 70% to around 50% and, in the south, eel becomes the dominant species of the freshwater fisheries group at over 80%. The freshwater fisheries of the north and particularly the midlands are more diverse and the obligate species, such as pike and perch, are more common, as are the cyprinids with dace, roach and chub most common. Sites from the City of London reflect the abundance of the Thames in terms of cyprinids, particularly from one site, Monument Hill/Fish Street (described below), pike and perch are few. South of the river, London sites reflected the south of England dependence on marine coastal/estuarine species and eel. The fisheries of the south presage the rise in marine fisheries of the Middle Ages and the abundance of eel.

Using the fish bone evidence to examine the effects of temporal changes and the type of site in the transition from the Iron Age to and during the Roman period, Allen (2011) nuanced evidence from different types of site. From the Middle and Late Iron Age, with few fish bones, their numbers increase through the transition and up to the late Roman period when, although there are more bones, there are fewer species. There was also a marked difference between Late Iron Age farms, where the few fish tended to be pike, and Romano-British minor rural sites where eel and herring were more common. The bone evidence supports an increase in fish consumption generally and especially marine and migratory fish for at least part of the population, in particular in the growing towns.

Representing *Colonia*, the examples given here are from Colchester, London and York. Colchester was the first provincial capital, which moved to London after the Boudican revolt. As the province became further subdivided in the third century York became a *Colonia* as did Cirencester and Lincoln in the fourth century (Mattingly 2007, 229).

At Colchester, a Late Iron Age presence was followed by the first legionary fortress in AD 44. It became the first *Colonia* in Britannia in AD 49 when the legion left to move west. During the Boudican revolt of AD 60/1 the settlement was burnt to the ground and, although it was rebuilt, London became the capital. Many of the inhabitants were military veterans representing the mix of nationalities that made up the Roman army. Extensive excavations since the 1970s have revealed areas of the barracks and civilian quarters. Fish bones from two sites, Culver Street and Gilberd School (Locker 1992a; 1986), were from deposits dated to early miltary and later civilian levels. Influential at both sites is location; there are no obligate freshwater species, though eel and salmonids present were likely caught in freshwater and some marine species enter estuaries, including grey mullet and flatfishes. There were also amphorae of Spanish origin which would have contained fermented fish sauces variously known as *garum, allec* and *liquamen* depending on the type and quality and very popular for flavouring. The proximity to the Colne estuary and the southern North Sea and access to imported fish sauces seem to have catered for all Colchester's fish requirements.

London, with constant redevelopment and construction, continues to be the focus of much excavation. Initially rural, developing from a trading centre, the location on the Thames with access to the North Sea was instrumental in its rebranding as the capital. Boats docked and unloaded their goods at substantial wooden quays. Excavation has recovered many large pieces of timber and other finds associated with Roman life on the waterfront. Public buildings, commercial property, housing for all ranks have been found and, among the domestic debris, fish bones have been recovered from many sites.

The assemblage from the site at Monument Street/17 Fish Street Hill is atypical. In an area of Roman buildings a timber lined well, reused as a refuse pit (AD 71–100), contained many high quality finds suggesting possible waste from a restaurant/inn or a high status household. Of 1226 identified fish bones nearly half (44%) were from

cyprinids, including barbel, roach, dace, silver bream, chub and gudgeon. Other fish from the river were perch, eel, salmonids and smelt (MoLa Oracle data archive). This site is unusual for the sheer quantity of obligate freshwater fish. Marine fish; herring, bass, mackerel, turbot and plaice/flounder were relatively few.

At No. 1 Poultry deposits spanned the first–fifth centuries, including the earliest securely dated Roman structure in London, a timber drain dated AD 47. Remains of buildings, roads and open spaces were found located west of the east–west road through Roman London, bridging the River Walbrook. Fish bones were found in all phases, especially in buildings of Trajanic/Hadrianic date (AD 95–135). Most numerous were plaice/flounder, eel, clupeids (herring family) and cyprinids, with limited evidence for smelt, grey mullet, mackerel and ray reflecting the exploitation of Thames resources in freshwater and the estuary. The few specific identifications of cod were from later phases (third century) which, together with mackerel, are evidence of marine fishing in the southern North Sea off the Thames Estuary (Pipe 2006)

The extensive Thames river system provided many opportunities for fishing including its tidal reach up to Teddington (Wheeler 1979, 5) with traditional fisheries for eel, smelt (*Osmerus eperlanus*) and whitebait (young herring), *Clupea harengus* and sprat (*Sprattus sprattus*). These fisheries are evident in the bone assemblages both north and south of the river. Young herring and sprats were used in production of fish sauce on the London Roman waterfront (Bateman and Locker 1982), possibly a cheaper domestic variety to the imported Mediterranean product typically made in industrial quantities on the Spanish coast. The quantity of cyprinids at the Fish Street site, together with high grade pottery and glass, raises the question of the status of freshwater fish in Roman Britain compared to Rome, where they were regarded as inferior to marine fish. They do appear in other assemblages, but the quantity of cyprinids at Fish Street is exceptional.

Sites south of the river in the Southwark area reflect exploitation of fisheries in the river, estuary and North Sea. At 1–7 St Thomas Street were found the remains of early clay and later stone timber buildings. An associated timber lined pit, dated to AD 160–180 produced a range of fish including eel, herring, pike, cyprinids (dace, roach, gudgeon and chub) a gadid and haddock (Jones 1978b). Excavation during the redevelopment at Fennings Wharf recovered fish from late Roman (fourth century) pits and rubbish deposits including ray, eel (most numerous) herring, sprat, smelt, cyprinids (including dace) cod and plaice/flounder (Locker 1995). Assemblages from both sites indicate freshwater fisheries in the river for eel, pike and cyprinids, migratory freshwater/estuarine fisheries for smelt, eel and flatfishes (young flounder can be found in freshwater, young plaice in estuaries) and marine fishing for herring and haddock.

At York the influence of an inland location and the river Ouse is evident. At 24–30 Tanner Row in York in second–fourth century deposits largely from buildings, cyprinids (including barbel and chub) head the obligate fish at over 50% (over 691 identified bones) with trout, grayling, pike, perch and the burbot also present. The

migratory species: eel, smelt, shad and salmon were also identified (O'Connor 1988, 114). Marine species are scad, herring, sea bream and flatfish, some of which could have been part of a unrefined imported fish sauce, or brought in from the coast. Location seems to be more influential than status, York is is 37 miles (60 km) inland and the proximity of the River Ouse is evident in the number of migratory and freshwater species. A late Roman sewer system, linked to the Legionary baths, retained bones of small cyprinids including bleak and roach as well as smelt, eel and stickleback, all local river fish (Wheeler 1976). An usual late Roman deposit was found at St Mary Bishopshill, in part of a Roman building within the *Colonia,* where a large scattering of bones of herring and sprat may have represented as many as 40,000 small fish. These young marine fish tend to shoal together and are often caught in tidal reaches or estuaries and are likely to have been brought into York from nearer the coast, a suggestion supported by a single bone of a young whiting, a marine fish, present in the subsample under examination (Jones 1988, 126).

Civitates being of lower status, were more numerous than *Colonia*; at Carlisle in the north-west, fish identified from first–third century deposits were largely salmon and eel, other species were marine or estuarine, a few pike bones were the only evidence of obligate freshwater fishes (Locker 1985; Nicholson 1993). Situated on the Solway Firth local fisheries for migrating salmon and eel supplied the town.

In contrast, at Wroxeter, Shropshire (Locker 1997b) fish from the Baths Basilica excavations were largely obligate freshwater, or migratory species. Late in date, fourth–sixth century, salmonids, cyprinids (chub, roach, dace) perch (largely scale fragments) dominated the assemblage of 262 identified bones. Not all deposits were finely sieved (which may explain the absence of eel) and some bones were hand-collected. There is little evidence for marine fish, except for a few bones from mackerel, mullet and plaice. The site is close to the River Severn, famous for its fisheries, especially salmon.

Inland and further south at Silchester (Hampshire, north of Basingstoke) fish were identified from the Basilica, dated Late Iron Age through to AD 400. Of 45 identified fish two cyprinid bones were the only obligate freshwater fish, with two from the migratory salmon from the later basilica (AD 250–400). The rest were of marine or estuarine origin and mostly from the later period. Although sieving recovered small bones, acid soil conditions may have adversely affected bone survival (Hamilton Dyer 2000).

In the south-east Canterbury, Kent, sited on the River Stour but only 7 miles (11 km) directly from the sea, has been extensively excavated and sampled by Canterbury Archaeological Trust, recovering many fish bones. Roman levels from Whitefriars (Nicholson 2007) dated from the first–fifth centuries had no obligate freshwater fish, only the migratory eel and the salmonids; the rest were marine. Herring/clupeids were found in all phases as were eel and flatfishes (plaice/flounder), making up 28%, 40% and 21% respectively of the 348 identified bones. Whitefriars typifies the Canterbury fish assemblages of this period, echoed in later deposits of medieval date;

obligate freshwater fish are only ever a small part of the overall assemblage. Moving south-west, excavations at Roman Dorchester, Dorset, on the River Frome, about 6 miles (10 km) from the sea, have also recovered few obligate freshwater species: eel are 53% and other marine/estuarine species 40% of the assemblage (Hamilton Dyer 1993a; 1993b).

In the countryside villas were elite, comparatively luxurious houses with an estate and usually associated with farming. Villas are well known feature of Roman life, preferential excavation has given them a high profile, yet they may only comprise as little as 1% of rural settlement. Villas were most common in southern and eastern England and often sited with easy access to towns. They were prestige sites, Roman in style and layout though some developed out of earlier Iron Age settlements, upgraded and extended. They were influential in displaying Roman culture and values. Villas in Britain vary greatly in size and standard but share certain features, such as use of stone or brick/tile, rectilinear plan, tessellated pavements or mosaic and bath facilities (Mattingly 2007, 370).

Fish bones have been recovered from a number of villa sites. A contrast is evident in the fish assemblage from two inland sites. Castle Copse, in Wiltshire, is Romano British villa of third century date, 38 miles (62 km) from the sea. Luxurious, with mosaics and wall paintings; the fish bones included cyprinids, eel and salmonids, both salmon and trout. There was also a significant marine/estuarine element, mainly flatfishes (plaice and flounder) with some herring in the later phase. Other marine species include scad, seabream and bass, common Mediterranean species also found off the south coast of England (Jones 1997). Transporting fresh marine fish inland in Roman Britain would have been a sign of luxury; by this time in Rome fresh marine fish were preferred over freshwater. However scad, seabream and bass have all been found in stored fish products in amphorae, so they may not have been fresh.

Gorhambury villa, near St Albans, Hertfordshire, largely first and second century in date and 50 miles (80 km) inland, developed from a Late Iron Age farmstead. Gallo-Belgic wares and imported amphorae were evidence of early Roman influence and, by the second century, the first masonry villa had a mosaic pavement (Neal 1990). The small fish assemblage was 91% eel, both obligate freshwater and marine fish are few. Two scombrid vertebrae were closest to chub mackerel (*Scomber japonicus*), which has also been identified in other Roman deposits such as Skeleton Green at Stevenage, Hertfordshire, an *oppidum* of Late Iron Age/Roman date, which also showed pre-conquest signs of Roman influence (Wheeler 1981; Locker 1990). Chub (sometimes called Spanish) mackerel can be found off the south-west coast but is very common in the Mediterranean and often found in Roman deposits associated with salted fish products or fish sauces stored in amphorae (Desse and Desse Berset 2000). When found in Roman deposits in Britain it is often cited as a possible indicator of imported goods.

Two other villa sites reflect their coastal proximity by their fish assemblages. Fishbourne (Ingrem 2004), near the coast at Chichester, Sussex, is one of the best known villa sites and described as a 'palace'. Among the fish bones eel was identified,

the rest were marine/estuarine, including wrasse and sea bream, and this is the only British site with clear evidence for salt water ponds.

A late Roman farm at Great Holts Farm near Boreham, Essex, with provincial villa architecture, also showed evidence for imported goods including olives and possibly cattle, whose osteology suggests a larger, different 'type' to contemporary native cattle. The fish bones, from a fourth century well, were largely marine; herring and plaice/flounder are most common, with one eel and six pike bones (Locker 1996a; Murphy *et al.* 2000). The site is only 5 miles (8 km) from the Blackwater estuary where another settlement at Elms Farm, Heybridge, was continuously occupied from the Late Iron Age to the Roman/Saxon transition. Primarily agricultural, there was a temple dated to the first century AD and peripheral manufacturing (metal working and pottery kilns). Only 400 m from the river, there is no evidence to date that the site operated as a port or developed into a small town, though imported pottery was found, including amphorae in the Late pre-Roman Iron Age (Atkinson and Preston 1998). The fish bones were relatively few, despite extensive sampling, which has been attributed to poor survival in acid soil conditions. The fish were predominantly from estuarine/marine conditions. The only obligate freshwater example was a single pike vertebra from late Roman deposits (Locker 1998).

Fish from 'native' sites are scarce. The Romano-British settlement at the inland site of Barton Court Farm, Abingdon, Oxfordshire, produced a small third–fourth century fish assemblage of eel and pike (including a large individual of 70 cm length), plus perch and cyprinids (Wheeler 1986). From the fourth–fifth century deposits there were five eel vertebrae and a bleak (cyprinid) pharyngeal, indicating that the only fish eaten were from local rivers. Romano-British sites in Wiltshire have only produced a few bones of the ubiquitous eel. Inland, possibly more isolated from 'Roman influence', no marine fish were found and there is little evidence for the exploitation of freshwater fish. Further east the fish recovered from pits and ditches of second–fourth century date from Meppershall, 10 miles (16 km) south-west of Bedford, Bedfordshire, were all caught in freshwater: eel, cyprinid and perch, with the exception of one possible clupeid vertebra (Locker 2004). 'Native' sites suggest a greater interest in freshwater fish than in the pre-conquest period, but do not demonstrate prestige by importing sea fish.

These examples demonstrate the trends in fish consumption suggested by different types of sites and study is ongoing. It appears from the current bone evidence that, excluding native inland sites where few fish have been recovered and those that are tend to be from freshwater fisheries, marine fish, especially those familiar species also found in the Mediterranean, were more desirable. At Roman influenced sites they reflect a delayed 'catch up' with the preference for marine fish then current in Rome. As a sign of status and aspiration fresh marine fish delivered inland reflected costly quick transportation or, salted and imported from the Mediterranean, are also suggestive of status and sophistication. The decline in popularity of freshwater fish in elite cuisine in Rome in favour of marine species was evident by the first century BC and, by the third century AD, an edict by Diocletian on fish prices show sea fish

at twice the price of freshwater (Campbell 2012, 336). The farther reaches of empire would have gradually and selectively reflected this preference as a prestige marker.

Water management and fishponds

Water features were key in prestigious Roman villas; Hadrian's Villa near Tivoli in Italy, built AD 118–134, was deliberately sited near a spring and aqueducts. Twenty-five architectural features survive today of which 19 have a water feature, still or moving, and their location has been interpreted as strategic statements of power (Wickham 2012, 25). There is some evidence for water features in British villas, specifically ponds, which could have been stocked with freshwater fish. The sparcity of evidence in Britain may be, in part, attributable to the focus on excavating the main building whereas ponds were part of garden architecture. In Roman villas in Italy marine ponds were prestigious while freshwater ones were for 'common people', according to one contemporary commentator (Hooper and Ash 1979, 523). However, few villas excavated in Britain have been by the sea and only one, to date, has salt water ponds, the prestigious Fishbourne Palace, Sussex. The ponds in the extensive gardens were fed by underground pipes connected to the estuary (Allen 2011).

Three freshwater fishponds (two connected to a stream crossing the site) of second century date were found during excavations at Shakenoak Villa, Oxfordshire (Zeepvat 1988, 23), but no fish bones were recovered. One pond was 12 × 11 m in area and about 30 cm deep, a second, separated by a causeway/dam, measured 65 × 27 m and was very shallow in places. The third was 14 × 11 m, but deeper and stream fed. There have been suggestions this was Britain's earliest fish farm, the ponds being breeding, main and holding pools, with the water flow controlled by (surviving) oak valves. Trout have been suggested as the possible species, but there is no bone evidence. The main pond is very shallow, and Bond and Chambers (1988, 366) consider a commercial venture unlikely. It would have been very inefficient compared to later medieval pond systems and may be an imitation of ornamental ponds at contemporary Italian villas. Other ponds found at villa sites are also likely to be ornamental and include Eccles and Darenth, in Kent, and Bancroft in Buckinghamshire. Gadebridge Villa, Hertfordshire, had a 'bathing pool' (added in the early fourth century) associated with a bathhouse. This large pool (*c* 12 × 21 m), which may have replaced an earlier smaller pool, lay adjacent to the bathhouse and was supplied with water from the river. At the bottom of the steps were small holes 'for fish to hide in', perhaps cyprinids or another freshwater species. The size of the pool, approximately the same size as the Great Bath at Bath, and the relationship with the bathhouse, makes it unlikely it was just for fish. There was also a tank in front of the period 3 form of the villa at Gadebridge, in a courtyard axial to the main reception rooms, from which it could be seen. It was thought to be a fish tank. Another pond or fish tank was also found in excavations in the early twentieth century at Caerwent, Monmouthshire, Wales (David Neal pers. comm.).

Ponds were clearly part of the elite package that showed Roman aspirations and connections and the of the country house package that was to be such an integral part of medieval and later rural estates. They may have been emulating Roman landowners in Italy who fished their own stocked freshwater and saltwater ponds for recreation (Monteagudo 2010, 177).

Sport fishing – early anglers

While the archaeological bone data clearly show some trends as to which fish were caught and eaten, they do not provide any evidence for recreational fishing. Angling was considered a sport in Roman life; rivers were public spaces with communal rights of fishing (Campbell 2012, 336). Soldiers had to ask their commanders permission to fish and it was also enjoyed by elite society. The Emperor Augustus (27 BC–AD 14) became an angler in later life as 'relaxation' (Suetonius 2000, 89), therefore it could be said that angling was the sport of both divinities and the 'common' man in Roman society.

Martial (AD 41–104), a poet famous for epigrams, has been cited as making the first reference to a jointed rod and possibly fly fishing (Herd, 2003, 70). However there is some doubt as to the latter; both Radcliffe (1921, 147, 151) and Herd (2003, 23) note the reference was to a saltwater fish: *scarus*. This is most likely to be the parrotfish, for which there is one Mediterranean species, *Sparisoma cretensis*. A member of the Scaridae, hence *scarus* (in Italian *scaro*) there is no freshwater member of this family, nor are they pelagic. Feeding on coral, parrotfish are unlikely to be attracted by a fly. In addition there is some dispute over the word *musca* as meaning fly, so the picture is far from clear. Jointed rods are less problematic and clearly have an early history; made of reed they were also used by fowlers, as depicted on a Roman lamp (Radcliffe, 1921, 149).

Other evidence for angling as an agreeable pastime can be found in Aelian (AD 175–235) who wrote 'fishing with a hook is the most perfect and appropriate mode for free men' (Monteagudo 2010, 164). Aelian also described Macedonians casting with rods for speckled fish, interpreted as the brown trout, *Salmo trutta* (Herd 2003, 24). However these were not first-hand observations – he never went to Macedonia, or indeed travelled anywhere. Pliny the younger (AD 61–112) wrote of fishing for sport at his villa on Lake Como, using a rod and line directly out of his window. The evidence for angling in the Roman period may be sparse, but contemporary literature suggests there were at least two famous anglers and an admirer of the sport; Roman soldiers may have practiced angling while off duty in Britannia. Fishhooks have been found at several villa sites, and though their typology does not determine function, an inland location may suggest freshwater fishing, for example at Wroxeter, Shropshire and Stockton, Wiltshire (Alcock 1998, 24). The Roman elite invited guests to fish their private ponds for entertainment (Monteagudo 2010, 177), a prelude to later English custom.

Art and symbol

Fish depicted in mosaics are often decorative forms and do not represent a particular species. Where they can be identified they are usually marine. In Hispania (Spain), where fishing scenes feature in six mosaics, they show marine fauna and mythical creatures. Rods and lines are the most common gear depicted, used by poor fishermen to earn their living. The mosaics decorate fountains, baths and ponds (Monteagudo 2010, 165). Fish and fishing scenes are a more common theme in North African mosaics, particularly in Tunisia (many can be seen at the Bardo Museum, Tunis); again they are all marine scenes. It has been suggested that, although mosaics often depict the sea, the artist may have been more influenced by what he saw in the fish market than the ocean (Bekker-Nielsen 2010, 198). In Roman art fishing is not used to display the same aristocratic links as hunting, which was enjoyed by the privileged classes and wealthy farmers, though they did fish for sport and exercise (Monteagudo 2010, 182). There are also some classical references indicating fishing was considered inferior to hunting.

Fish shown in Romano-British mosaics are largely as non-specific as those depicted elsewhere. Initially, in the second century, plants and animals on mosaics were naturalistic but, by the fourth century, the high period of villas, they became stylised (Alcock 1998, 27). At Lufton villa, Somerset, a wealthy late third–fourth century villa, at least 29 fish (which may depict salmon, trout or pike and eel) formed the border of a mosaic decorating an octagonal plunge pool. Fish also featured on mosaics at Cirencester, Great Witcombe Gloucestershire, and Rudston, Yorkshire, but the themes are largely marine. Bancroft Villa in Buckinghamshire had a fish motif painted on wall plaster around a bathing pool and an ornamental fishpond in the gardens. Their speckled appearance suggests some might be trout, though a dolphin head is also apparent and bivalve molluscs, more in keeping with a marine theme. A mosaic associated with a bathhouse from Wigginton Villa, Oxfordshire, is one of the few examples from Britain where freshwater fish may be shown (David Neal pers. comm.). A fish, possibly salmon, is depicted in a mosaic at Lydney, Gloucestershire, a temple site dedicated to Nodens, which overlooked the River Severn (Alcock 2001, 50). This river was abundant in salmon, a fish associated in Celtic myth with wisdom. An important find from this site, a broken bronze strip known as the 'Lydney Bronze', shows two fishermen hauling on a rod and line, one has caught a fish resembling salmon.

The red gloss tableware called *Terra Sigillata*, commonly known as samian, can claim to be the first dinner service. Production in southern Gaul from the famous centre La Graufesenque was at its height in the mid–late first century AD with 600 potters. Near Millau, in the region of the Tarn in France, samian was produced in industrial quantities, both plain and decorated and often stamped with the potter's mark. Two potters, *L. Cosivs* and *Germanvs*, included fishing scenes as decoration. Fishermen are shown sitting on rocks using rod and line to catch fish. The fish cannot be identified but the catch is shown strung through the gills and hanging on a tree. The fishermen are on land, with no boat and it has been suggested these are river scenes influenced by the inland location of the production centre, but show commercial fishermen not

anglers (Bustamante Alvarez 2010, 293). Decoration is precise though, by necessity, small and often stylistic, which makes identifying fish species difficult.

None of these decorated samian pieces showing fish has been found in Britain but fish motifs have been found decorating metal spoons, dated to the first and second century, possibly from a local workshop, found in the Walbrook and other London sites near the Thames. The spoons are made from lead and tin with small amounts of copper; tentative identifications of the fish include salmon and marine species such as 'red mullet' and 'red gurnard', or bream and 'carp' from freshwater, (Jones and Sherlock 1996). In this instance carp refers to cyprinid or carp family rather than carp the species, a later introduction to Western Europe. The fish portrayed on these spoons seem decorative rather than naturalistic. Some are depicted as skeletons, others whole fish on their sides or lying flat, but all show three fish vertical towards the handle. The flat bowl of the spoons has led to suggestions they were too shallow for liquids and may have been for spooning fish sauce.

The evidence from mosaics and the spoons indicates that identifying freshwater fish in decorative art in Britain is both limited and difficult. Where it is possible they are either marine, or migratory (salmon or eel) or, especially in the later period, stylistic and non-specific.

Conclusions

The current evidence supports an increase in the numbers of fish bones of all types recovered from the Roman period onwards. One thing the Romans 'did for us' was put fish back on the menu. They were a more visible food item than in the preceding Neolithic, Bronze and Iron Ages, but still a minor part of the diet, especially in more remote rural areas, which continued in an Iron Age tradition and constituted most of rural settlement. The influences are not simply a general 'Roman effect', fish becoming more fashionable with changes in culture brought by the military and civil servants. Access, location, as well as social factors, aspirations and gender all seem to have played a part as to whether and which fish were eaten. More evidence is needed from rural native sites, which are less likely to be excavated as less threatened by development compared to occupation levels in towns and cities, unless the object of a grant aided research excavation or threatened by erosion. A substantial amount of excavation is now funded by developers meeting their legal commitments to assess any disturbance to archaeological deposits prior to construction which, therefore, tend to be more concentrated in built up areas.

Using bones to compare the dietary contribution of fish against other animals such as sheep, cattle, pig and domestic fowl is fraught with difficulty. Biases of differential bone survival, recovery by hand collection (missing small bones) and sieving at excavation level influence the results before any subsequent challenges of how best to quantify and interpret the data. Comparing trends between fish species and fisheries is less challenging than between fish and domestic stock. Issues of recovery methods

and differential survival are still a problem, but comparisons can be made between numbers of species from freshwater fisheries compared with those from marine and estuarine conditions. Contrasts are revealed between locations that are not purely influenced by access to freshwater systems, as we have seen at the Castle Copse villa site, but more complex influences of culture and status. Sea fish may be status symbols at inland sites and are more evident in southern areas, in a sphere of greater Roman influence. Sites in the north and midlands have shown stronger reliance on freshwater fisheries, including obligate freshwater species, the only areas where these were over 25% of all fish bone numbers (Locker 2007). In the south marine/estuarine fisheries dominate, together with eel. Isotopic analysis of human bone will continue to refine our knowledge of dietary trends in this period.

Evidence for sport angling in Roman Britain is only by tenuous linkage with sparse evidence from other parts of Empire. The freshwater species that would have been the angler's quarry are relatively few and seem to have been infrequently eaten.

Chapter 3

AD 400–1066. Pagans and Christians

Saxon England

The decline in Roman Britain was gradual from the later fourth century, evident in fewer public buildings and a decline in towns, though many wealthier villas are of this later period. The native roundhouse settlements of a continuing Iron Age tradition, that made up the majority of rural Britain, were less affected. Enigmatic layers of soil at urban sites, peculiar to this transitional stage and described as 'dark earth' deposits, covered some Roman levels. This became a ubiquitous term for a variety of deposits of unknown origin or function. They became the embodiment of a postulated post-Roman, almost apocalyptic time, synonymous with the term 'dark ages', a view that has changed with more recent scholarship and excavation.

Despite an urban hiatus there is some evidence of continuity between Roman and Saxon occupation, especially in the west of Britain, including sites such as Wroxeter, Shropshire with an early Christian community (Fleming 2011, 38). Evidence of sporadic settlement has been found at former Roman strongholds including St Albans, Canterbury and London. Recent research in the Cambridgeshire Fens has shown that, despite a decline in the late Roman period of farming settlements, the Fens were not depopulated, supported by the wealth of material finds from the fifth–seventh centuries. Of the two schools of thought for and against an Anglo-Saxon 'invasion' this continuity supports the latter. Migration was normal within the Empire and would have continued after the Romans left. The evidence from the Fens supports an interchange with the surviving Romano-British population rather than an aggressive invasion, at least in the early period, though Viking hostile landings were made in the later ninth century (Smith *et al.* 2016; Catling 2017b). The Fens have always been rich in freshwater fisheries, though the wetlands had a long history of management to create pasture and fertile farmland well before the draining of the mid-seventeenth century, back to at least the Roman period.

Some cultural change has been detected through analysis of animal bone assemblages; the Roman style of hunting, fowling and fishing all but disappears and domestic fowl are few. There is a general, though not wholesale, return to the dominance of sheep in the early period in contrast to Roman bone assemblages, which showed increased numbers of cattle and pig at urban, military and legionary sites (King 2005). Fleming (2011, 44) has described the mid-fifth century as a time where 'there were no big places only small ones, and everyone's universe of familiars was highly circumscribed'. This return to self-sufficiency would increase the value and pressure on local resources including fisheries from rivers, estuaries and coasts. Life in rural early Saxon England (fifth–mid-seventh century) has been compared to an unconnected resumption of Late Iron Age farming systems and self-sufficiency (Sykes 2011; Holmes 2014; 2016), rather than a decline. Early Saxon husbandry may also be seen as 'functional adaptation to changed circumstances' (Rizzetto *et al.* 2017). The early period is no longer classified as a cultural void, but communities shifted and some sites were abandoned, especially in towns. Unspecialised husbandry was a response to local conditions, however the evidence is scant compared to later parts of the period.

Foodways and cookery

In a newly Christian Britain fasting would become part of the calendar, though abstention from meat was no hardship for those who could not afford to eat it on a daily basis. Early religious communities were bound by austere practices including diet. St Augustine (AD 354–430) favoured fasting and abstinence without banning specific foods. He was influential in the rule of other orders including the Benedictines, founded by St Benedict (AD 480–547), who advocated abstention from the meat of four-footed animals, except for those monks who were sick and weak. Theirs was not a vegetarian diet as fowl, being two-legged, were not excluded and neither were fish. Later Benedictine subversion of the rule was to interpret the ban as applying to the refectory, where monks observed the rule, while in another room, the *misericorde*, flesh was consumed. In the eighth century monastic houses began to acquire land and fishing rights, which became an integral part of monastic estates in the medieval period. Enclosed waters and rivers with riparian rights yielded a ready fish supply for the abbot's table in times of fast, though the ordinary monk was more likely to be served salted herring and, later, salted and dried cod and other white fish.

Fish could have been cooked in a number of ways. The cooking methods ranged from boiling and stewing to oven baking and roasting. However, much of the food seems to have been boiled, an easy way of cooking all parts of an animal. A variety of metal cookware was in use; cauldrons, griddles and frying pans as well as soapstone and ceramic vessels. A greater use of herbs and a predilection for sweet dishes in Anglo-Norman recipes, compared to early medieval French recipes, suggests the former absorbed influences from earlier British cuisine (Hagen 1995, 64). Herbs would

have enhanced fish cookery with a range of native plants like chives and thyme. Although we do not have precise evidence for Saxon fish cookery, there were evidently a variety of techniques and flavourings available.

Evidence from human bones

Isotopic analysis of human bones holds some dietary clues as to fish consumption in this period. In one study bones from 76 adult human skeletons from 18 cemeteries were sampled (Mays and Bevan 2012). These burials were largely high ranking, judging from the grave goods, themselves a relic of pagan practice. They were divided into three geographical groups: inland, riverine and coastal. Although, overall, terrestrial foods dominate there was evidence to suggest, through slight elevation of carbon levels near the coast and nitrogen at riverine locations, greater use of marine and freshwater resources in these areas. These burials, although not representative of all classes, are supportive evidence, together with remains of fish traps, for the exploitation of both river and coastal fisheries. This growing body of evidence suggests freshwater fisheries may have been more widely exploited than previously thought, further supported by recent meta-analyses of archaeological fish bone assemblages.

Archaeological fish bone evidence

Holmes (2014), in an analysis of all animal bone data from 241 sites of Saxon date, compiled fish identifications from 15 early, 27 middle and 38 late Saxon sites. Of fish species found in more than half the sites (±5%) only pike and eel qualify for the early period; eel, salmonids and flatfishes the middle period; and eel for the late period. Pike is the most frequent obligate freshwater species, found in 47%, 30% and 39% of all fish assemblages, but only represented by a few bones in each instance. Pike appears to be an iconic fish in prehistory and also in the Saxon period and continued to be important in medieval display and managed pond systems. A predator, this nature had to be balanced for co-existence with other fish by ensuring they were too big to become prey. Monitored pike predation could also be managed to cull excess young stock. Adult pike are naturally solitary and could have been caught singly in rivers where other shoaling species, including some cyprinids, could be netted in numbers. Their relatively frequent occurrence suggests they may have been specifically targeted.

A recent study of fish from Anglo-Saxon sites has further refined the picture of fish exploitation. Reynolds (2015) identified more evidence for fish consumption in the early period of both marine and freshwater fish than previously detected, though still low. Greater diversity was found for the mid-Saxon period, a feature once thought to be more typical of late Saxon sites. There were also differences between types of sites mid-period; freshwater and estuarine species were identified at urban sites while the elite tended to be more focused on marine and larger freshwater and estuarine individuals as statement fish. The late period was slightly less diverse, but

suggested greater demand and supply, which mirrors the Roman trend towards less diversity through time.

Agricultural society in the early period was non-specialised; this shows in both domestic mammal assemblages and archaeo-botanical remains (Crabtree 2013). Wild species are few, with no particular pattern of distribution, and thought to be more symbolic than food supply. Fish were also part of the wild food supply and Bede remarked that Britain's rivers abounded in fish, especially salmon and eel. The abundance of the latter is said to have inspired the name of Ely in the Cambridgeshire Fens. Bede gives an account of his contemporary, St Wilfred, showing the South Saxons in the seventh century how to catch sea fish in a time of famine when, apparently, they only knew how to fish for eels (McClure and Collins 1999, 9, 193, 205). Whether or not they really lacked marine fishing skills and this is more a religious parable than factual, it supports the abundant supply of eels available at this time.

The scarcity of documentary data compared to after the Norman Conquest places bones as the main source of evidence in this period. Investigating the use of wild resources, Sykes (2010) examined 58 animal bone assemblages that included red and roe deer bones from a variety of sites. The results suggest a change from a culture of redistribution of hunted deer in a collective approach in the early period to a later practice of privatisation and exclusivity for the elite. The development of a proto-'feudal' society is echoed in other areas with changes in land ownership; new landowners foreshadow the reorganisation following the Norman invasion, including privatisation of waterways. However in the early period, when restrictions were least on freshwater systems, the numbers of fish bones recovered through excavation suggests fish, though more evident that previously thought, were still not a significant part of the diet. Through time increased privatisation of land would affect access and the supply of fish from freshwaters, which became concentrated into fewer hands through ownership of riparian rights. Fish became part of an elite statement of exclusivity, a source of income and currency for rent payments.

Returning to the early period (fifth–mid-seventh century) the paucity of fish bones is highlighted by Holmes (2014), who collated 57 sites with animal bone assemblages of early date, of which only 15 included fish. In some cases this may reflect a lack of sieving though eel and pike were the most commonly occurring species. The small bones of eel, especially vertebrae, are usually only recovered through sieving, which suggests at least some sampling at most sites where fish were found. In a study specifically on fish Reynolds (2015) collated 42 early Saxon sites, of which nearly half included fish in their bone assemblage.

Looking at a few sites in more detail, fish found in early Saxon deposits include an inland site at Barton Court Farm, Abingdon, Oxfordshire (Wheeler 1986). There were seven sunken-featured huts and the site shows continuity of occupation through prehistoric and Romano-British times. The bones reflect a local freshwater fishery; eel were most numerous but also present were pike, perch and cyprinids, including roach and rudd. This assemblage of 95 identified bones is echoed in the small sample

from the earlier Romano-British farmstead on the site which lies roughly equidistant to ports at Bristol and London, 50–57 miles (80–90 km). The inhabitants do not appear to have sourced marine fish. In contrast, another early assemblage from Redcastle Furze, Thetford, Norfolk (*c.* 30 miles/48 km from the port of Kings Lynn) largely comprised herring, reflecting coastal access, but also included some eel and single fragments of pike and perch among 51 identifiable bones (Nicholson 1995). This pattern continued through the later Saxon and medieval occupation of this site. Both sites show continuity in fish consumption through late Iron Age and Romano-British occupation into Saxon times. Whether the extra distance from the sea at Barton Court farm compared to Redcastle Furze played a part in the absence of marine fish or reflects differences in status or culture, both sites show some exploitation of freshwater fisheries but only the more eastern site marine fish. At West Stow, Suffolk (32 miles/51 km south of Kings Lynn and the Great Ouse Estuary) from fifth–late sixth century sunken-featured buildings, pike and perch represent freshwater conditions and plaice/flounder marine/estuarine waters. The latter must have been brought 31 miles (50 km) inland from the coast. These bones were recovered by hand (Crabtree 1989, 27), so smaller species are likely to have been missed. With a few exceptions (Redcastle Furze, and individual sites in Northampton and Leicester) marine fish were only found at sites near the coast. In this period, though fish bones are not abundant they show that location plays a key part as to the importance of freshwaters fisheries, the ubiquitous eel is common but obligate species are present.

By the middle Saxon period (late seventh–ninth centuries), more of England was under Saxon rule though retaining some native culture. Wild animals seem to be linked with status judging from the distribution of deer bones. Meat bearing bones were found at lower status sites and a concentration of jaws and extremities at high status sites, suggesting that the elite hunted and redistributed the meat (Sykes 2010). There are both more sites and more fish than from the early period. Evidence from London, Ipswich, York and Flixborough is discussed here. All are *wics* (early trading centres) except Flixborough. London sites show some variability, for example the fish bones from excavations at the Lyceum have more marine and estuarine species, while the fish from Maiden Lane were mostly eel; obligate freshwater species included cyprinids and pike (Locker 1988, 150). Fish from eight mid-Saxon assemblages at Ipswich are mainly eel and marine/estuarine species, reflecting an estuarine, near coastal, location, with eel over 50% of all fish at five sites. Two sites from Ipswich included a few cyprinid bones and perch was present at one (Locker and Jones 1985). These few freshwater fish are only from the middle period at Ipswich, there are none later. Many fish bones were recovered from Fishergate, York, with freshwater species including cyprinids (barbel, roach and chub), trout, grayling, pike, and perch. Eel was both common and numerous and, with smelt, shad and salmon, represent migratory fish, all may have been caught in the River Ouse which was tidal until the construction of a lock south of the city in the eighteenth century. Herring was the most common marine fish in this period (O'Connor 1991, 264). Flixborough, in north Lincolnshire, overlooking the Trent

floodplain and south of the Humber Estuary, is notable for its status, occupation span and the volume of excavated material. Occupied from the seventh to early eleventh centuries, a large assemblage of animal bones including fish was recovered (Dobney *et al.* 2007). The date range includes the mid-period when estates are thought to have been large, through to a later contraction and intensification. Flixborough is described as a high status, rural, possibly monastic estate. The fish assemblage is weighted towards obligate freshwater fish: pike and cyprinids, and migratory eel, salmon and smelt. In broad terms changes through time are towards more migratory fish and flatfishes and away from obligate freshwater fish (Barrett 2002). The detailed picture is more complex between context types and the size of fish, with some evidence that fish were caught and butchered off-site. The later fish assemblage does not reflect the change towards marine fish seen at the *wics* by the tenth century and it is suggested this is possibly a reflection of rank at this site (Fleming 2011, 298).

An important middle Saxon site with a large fish assemblage of marine taxa is Sandtun, in West Hythe, Kent. Here deposits from a fishing community included 1278 identified bones of marine species, primarily cod, whiting and flatfish (Hamilton Dyer 2001). Unsurprisingly, given the location, there are no freshwater fish and eel are few. One interesting aspect is the large number of cod bones (18.5% of all identified fish) equalled only by flatfish, but cod represent more in terms of meat weight. This pre-dates the commercial development of the cod fisheries and cod is thought to be a high status fish in this period as it tends to be found at elite sites, including Lyminge, also in Kent (Reynolds 2015), a mid-Saxon monastic site where a substantial number of cod bones were recovered. The demand for cod was to overtake herring as the prime food fish in the medieval period, but at this time the acquisition of prime marine food fish from a line fishery would have been a statement of wealth. A large assemblage (9443 identified bones) from middle Saxon deposits from Canterbury, just outside the boundary of St Augustine's Abbey, was dominated by marine fish, in particular cod (again representing a statement fish) and other gadids, herring and plaice/flounder. Eel was nearly 25%, but fish from exclusively freshwater fisheries were very few: trout (35), cyprinids (2) and perch (2) (Nicholson 2015). The scarcity of obligate freshwater is a feature of Canterbury fish assemblages of all periods, despite the River Stour flowing through the city.

In the late Saxon period (from the mid-ninth century), the transformation in society continued; some of the old large estates had been broken up as increasing numbers of the rising thegnly class, described by Fleming (2011, 278) as somewhat similar to the gentry of the Middle Ages, presided over smaller estates. Peasants and slaves were more concentrated in villages, voluntarily or even forcibly rehoused (ibid., 313). By the early eleventh century prosperous landlords, land holders and town dwellers are characterised by an increasing use of money for tribute as well as purchasing goods (instead of gift exchange and barter). Lower down the social scale the value of coin remained too high for many of their transactions (ibid., 313). The restructuring of cereal production, increase in water mills (processing grain), with

6000 recorded in Domesday in 1086, and increasing numbers of sheep, created some very wealthy individuals. Access to wild game became 'privatised' in rural settings with 31 parks for 'wild animals' in southern England listed in Domesday. Some parks may have had fishponds for certain freshwater fish already seen as an elite food. Game and wild birds are also now represented in bone assemblages from developing urban centres, the *wics* or trading towns reflecting a new proto-urban consumer demand. Marine fish are also well represented at *wics*, which are usually sited close to the coast. The wealth of the new elite was well established in pre-conquest times, evident in their rich clothing and also food, which was remarked on both for quantity as much as quality by the Normans (ibid., 299). Society was now based more on consumption than production, with social display used to make clear differentiation between social strata.

The bone evidence supports increased importance and exploitation of marine and estuarine resources leading up to the Norman invasion influenced by location. Six sites from Ipswich had no obligate freshwater fish, though one was 93% eel, while at Flixborough late deposits still retain an important freshwater element but are less diverse than in the middle period. The temporal trend is towards freshwater fisheries being dominated by eel and increasing presence of marine/estuarine fish. The church continued to grow in wealth, monasteries becoming major landowners whose power would peak in the medieval period and be their downfall in Tudor times. Fish were part of monastic wealth; at Canterbury Barton Court, the home farm on St Augustine's Abbey lands, the fish are eel and marine/estuarine species, quite typical of Canterbury fish assemblages of all periods where obligate freshwater fish are always few (Locker 2009a).

From excavations in the undercroft at Westminster Abbey, London, a large sample of fish bones was recovered from a tenth century ditch deposit. Over 9000 were identified to species and dominated by marine/estuarine species (Locker 1989). There was also a significant obligate freshwater element, including pike and a variety of cyprinids: tench, bream, barbel and (most numerous) roach and dace. The latter are two of the smaller cyprinid species, the average size of adult roach is around 35 cm and dace 15–25 cm. Measurements on the pharyngeal bones (19 for roach and 44 for dace) indicated the majority were from fish well below average size. A few bones were from large bream and this was a prime pond fish before being supplanted by carp. Tench, barbel or pike were not large, though individually they would have presented more of a statement fish than roach or dace. The latter two species are the most commonly identified cyprinids and are probably the result of general netting, either from the river or possibly ponds and served as a 'messe' of fish, Eel, that ubiquitous species of the medieval period were relatively few. A number of surviving documents grant fishery rights, including riverine, to monasteries (Hagen 1995, 165); these fisheries were to become a major part of monastic wealth.

These changes reflect societal change with the growth of *wics* as proto urban trading areas and increasing consumer demand and some specific markets for marine

and freshwater fish in certain sectors. Among the new, upwardly mobile, 'thegnly' society wealth display could also be portrayed through the pursuit of elite practices including hunting and, within that sphere, angling. General access to rivers may have been restricted by the increasing privatisation of land holdings and waterways making freshwater fish more elite as exclusivity relies on restricted access. However, at the same time, demand for marine fisheries was growing (Barrett *et al.* 2004), met initially by the herring fisheries which were later to be overtaken by cod. Freshwater fisheries could never compete on numbers or weight (even eel) to meet the demand for fish from a growing population compared with marine and estuarine/shoreline fisheries, in which two flatfish species, plaice and flounder, are particularly abundant among archaeological remains. Trapped and netted in shallow shoreline or estuarine waters they occur in the majority of fish bone assemblages.

Water management, ponds and exploitation

Ownership of hunted or fished prey in this period is defined in a legal principle of AD 533 (*Institutes* of Justinian), all wild beasts, fowl and fish became the property of the person who captured them. Non-domestic animals were not the property of the landowner and could be hunted by anyone of free rank, their slaves and servants (Marvin 2006, 22). Landownership was not the guarantee of exclusivity in hunting and fishing rights it was to become.

The physical evidence for fisheries on waterways of the period are visible through surviving wooden remains of fish traps. Ten traps, mostly V-shaped, or barriers, have been recorded from the Thames and date from the early–middle period. Generally made of oak cut from managed woodlands, these traps operated in a broader and shallower Thames than today. The fish assemblages from the early period are few, but Clabburn (2013/4) suggests that the survival of four wooden traps could indicate that fish were more important than the fish bone data imply. Other surviving Saxon weirs included Colwick, Nottinghamshire, on the Trent floodplain, where posts and hurdles of oak, hawthorn and holly were dated by dendrochronology to the eighth and ninth centuries. Documentary records of a late Saxon manor at Tidenham, Gloucestershire (AD 950–1050), refer to at least 65 structures (basket weirs and wattle fences) across the Severn and the Wye to trap salmon and other fish (Seerbohm 1883, 152). These estuarine fisheries were clearly important with 52 listed in the Domesday Book (Waters, 1987, 165). The power of the Lord over tenants' fishing gave him the right to every other fish and, all 'rare' fish caught the weirs. What constituted 'rare' may have been at the lord's discretion or desire and when the lord was on the estate no fishing could take place without his permission.

Other finds are metal hooks, mostly iron, and lead weights. Interestingly there were hooks with 'looped heads' (eyed), dating from the ninth–eleventh centuries among many other examples of flat-headed hooks (Reynolds 2015). Eyed hooks have a long history and prehistory (found in Bronze Age deposits in France) supported by

occasional finds, but did not become mainstream until much later. Flat spade-ended hooks were still commonly in use in the eighteenth century. Even though lines could be much more easily tied to eyed hooks they did not completely replace the spade-end form until the early twentieth century (Herd 2003, 146). The reluctance to give up spade-ended hooks seems very conservative, while other fishing equipment was to evolve rapidly.

The Domesday Book indicates around 6000 water mills established on English rivers and a wealth of fisheries whose value is often measured in eels, an indication of their abundance. This is an indication of the high degree of human manipulation of waterways by this period. Nets, weirs and traps set to trap fish were often cited as blocking waterways and they would become subject to much legislation. Simple rods, lines of horse hair, lead weights and hooks were the tools of the angler rather than the commercial fisherman. There are some Saxon charters referring to monastic fishing, using fish weirs as early as the seventh century mainly to trap eels (Bond 1988, 85). Commercial coarse fishing methods feature in Aelfric's *Colluquy* (late tenth century) casting bait, using nets and baskets. Freshwater fisheries are clearly important in this period though the *Colluquy* has a wider philosophical meaning. Recent research has shown that as early as the Saxon period the number of water mills on North-wst European rivers systems, including England, had a negative impact on salmon populations. They were estimated to have fallen by up to 90% by AD 1600. In England the Domesday Book records few rents measured in salmon where vertical water wheels were common, whereas in areas with few mills or horizontal wheels (Devon, Gloucestershire, Hereford and Cheshire) and Scotland, salmon were sufficiently numerous to be used as rent payments (Lenders *et al.* 2016). This indicates the constriction and pollution of waterways was already having a severe effect on fish, especially those relying on access for migration. The Saxon waterscape was heavily managed.

Some late Saxon manor houses had enclosed waterways in the form of moats and ponds and may have been stocked with fish, a precursor of the of pond culture of the medieval period and a status symbol. In Oxfordshire late Anglo-Saxon ponds are cited in two charters of mid-tenth century date. A more specific reference to a fishpond rather than fisheries is found in the Oxfordshire Domesday folios and there are a few other references to fishponds in other counties, but they are rare. The term *piscariae* is more common but more likely to mean river fisheries (Bond and Chambers 1988, 356). In the later part of this period artificial stocked ponds are still comparatively rare, though there is evidence that they are beginning to be a desirable part of country estates. Pike, eel and cyprinids such as bream and roach would be stocked and 'grown on' for the table.

Sport fishing

The social divide that grew during this period was to dictate the future exploitation of freshwater fish as both food and sport. The fishing of common waters and the

growing elite practice of stocking private waterways was a symbol of social division. This restricted access was very influential in the way sport angling was to develop. We do not have much data for this period on the status of angling as a sport or accomplishment. Some evidence has been used to suggest angling was already a sport for landed gentry together with hunting and hawking (Hagen 1995, 161). This is found in part of Alfred's ninth century *Preface to the Soliloquies to St Augustine* (Whitelock 1955, 844). Hagen (1995, 138) quotes the translation as reading 'every man likes on stay on the land his lord has leased him, and to go hunting and fishing and fowling'. However another version from the Old English by Hargrove (1904, 2) leaves some ambiguity as to whether this was sport fishing or practiced by gentry,

> 'It is no wonder that one should labour in timberwork, both in the gathering and also the building; but every man desireth that, after he hath built a cottage on his lords' lease and by his help, he may sometime rest himself therein and go hunting, fowling and fishing; and use it in every manner according to the lease both on sea and land'.

This does not appear to refer to elite practice but the exercise of traditional rights. There is a sense of recreation in this translation but may have been more about stocking the larder.

Outside of an elite context hunting may only refer to small game, such as brown hare, thought to be introduced from Europe in the Iron Age. Hare has been identified from many Saxon sites (Hagen 1995, 132) and in medieval times was a valued quarry among the elite. Rabbits, traditionally seen as a commoners' right (a limited group of individuals, freemen or property owners) outside managed warrens, are thought been introduced by the Normans. Bones of earlier date have doubtful provenance apart from two well-dated Roman examples, which may be from animals brought in as carcasses (the bones show cut marks) or skins from southern Europe, given their small size (Sykes and Curl 2010). Bone evidence for hunting, wild fowling and fishing, scarce in early Saxon deposits, increases through the middle period in high ranking deposits and by, the late period, also defines status in 'urban' settlements.

Hunting, falconry and gambling were viewed as unsuitable pursuits for the clergy from at least the eleventh century, according to Bishop Wulfstan's *Canons of Edgar* (AD 1006–1008). Any infringement was punishable by abstinence from meat for a number of years (Hagen 1995, 139). This edict might have earlier origins as much of Wufstan's source material was from Bishop Ghaerbald of Liege's *First Capitulary* on the discipline of clergy from the eighth century. Angling was considered cerebral and suitable for clergy in the time of Izaak Walton (seventeenth century) but could have a long history as an acceptable priestly pastime back to the eighth century. The Christian depiction of Christ and his disciples as fishers of men has a long tradition. An illuminated manuscript of around AD 1000 shows St Peter with the line wrapped round the rod, common practice with spare line before the reel (Buller 2009, 23) which holds the Christian message as fishers of men and perhaps authorising angling as a pastime for the clergy.

Art and symbol

Saxon decorative metalwork was ornate and highly skilled, often using inlaid precious stones and animal motifs in stylised form. Fish had some symbolic significance, depicted in iconography and as animal motifs on early Saxon shields in mid-sixth–early seventh century male graves in eastern England, the area of most early Saxon settlement. Some of the fish resembled pike and there were other more enigmatic aquatic emblems (Dickinson 2005). Rejecting Christian symbolism, Dickinson suggests pike, as the most predatory fish known at that time, were used to represent mythical sea creatures. Fish motifs were also found on brooches and buckle mounts. The other 'aquatic symbols' cannot be confidently attributed to species. Paired shield mounts were found in a male grave (buried with a child) at Spong Hill, Norfolk described as bronze shield appliqué, gilded on the upper surface, they look like pike (Hills *et al.* 1984, 134). From Mildenhall, Suffolk, a mount said to be from a female grave on the basis of the presence of a bracelet clasp, is also very similar to pike, though the rivets are thought to be too small for a shield (West 1998, 234).

Fish were also found on some Kentish buckles from high status male burials; including those from Crundale, Kent (silver gilt) and Faversham, Kent (gilt bronze), both seventh century. Both buckles show the fish viewed from the top. The kingly burial at Sutton Hoo in East Anglia was rich in grave goods. A copper alloy bowl dated to the seventh century had a rotating fish mounted on a pedestal in the centre, which could be salmon. A grave from Barton Court Farm, near Abingdon, Oxfordshire, of a young woman and a newborn baby, included among the grave goods a silvered, bronze plate in the schematic form of a fish; a form more commonly found on shield mounts (Miles 1986, 18). Christian burial practices excluded grave goods but these finds from the early period retain pagan practice. The early Saxon period in Britain was a time when Germanic motifs and Christian symbols overlapped and so there is some ambiguity as to whether fish are purely decorative or with religious meaning. Herman (2017, 54) describes the art of the period as in a state of flux, where fish, already part of a zoomorphic Germanic artistic tradition might also be imbued with some religious meaning.

The Lullingstone bowl from Kent (late seventh–early eighth century) is a decorated hanging copper alloy bowl and shows a fish in side view with a bird looking down on it, on display in the British Museum. The spectacular Staffordshire hoard (seventh–eighth century) included what is thought to be a shield decoration, in gold, of two eagles holding a fish between them as both claim it. Although marine, another notable find from this hoard is a stylised seahorse in gold, a decorative piece. The only representation of this species, originally it was thought to be a stylised horse, however the detail fits seahorse perfectly (Neil Garrick-Maidment of The Seahorse Trust, pers. comm.) and can be seen in Birmingham Museum and Art Gallery. It is interesting to think that this small and reclusive fish was known to Saxon gold workers and so beautifully executed. The pipefish family (to which seahorse belongs) is rarely

represented in bone assemblages. None of these examples has any clear linkage to Christianity and come from an earlier tradition. However fish are also found in illustrations of feasting, so evidently suitable for the top table, and in that context could be symbolic of a Christian theme.

Conclusions

Throughout the Saxon period there is evidence for the evolving exploitation of freshwater fish and fisheries on many levels. The early Saxon farmer, primarily an general agriculturalist in the Iron Age tradition with little interest in wild resources, gradually evolved into a more specialised practitioner while society became more codified and stratified. This was characterised at the upper level by many small prosperous manors, a wealthy elite and a consumer society. The incomers from Normandy would find already embedded an ambitious landed gentry with their own style in which freshwater systems had been intensely harnessed and exploited. Fish had ceased to be a pagan decorative symbol or rare on the menu. By the late period wealthy estates already had their own stone churches, fishponds and ate venison, three things the Normans embraced and built on (Fleming 2001). These water systems were an elite feature that was to expand in secular aristocratic society and develop to new levels of sophistication on monastic estates. The demand for fish would be met by expanding marine fisheries, while freshwater fish acquired status in the context of privatisation. Evidence for recreational angling remains slim, though there is some suggestion it was a sophisticated accomplishment amongst the nobility and clergy in tune with Christian values, and was considered a more cerebral pastime than hunting. However angling must have always been popular across society and, as we shall see, a strong oral tradition existed long before the first printed angling tracts, showing that sophistication in technique and practice transmitted widely.

Chapter 4

AD 1066–1538. Catholics to Protestants

The Norman invasion has been used as a convenient starting point. However just as the Roman Conquest did not suddenly change all lives throughout Britain (some remote rural areas remained comparatively untouched), the new class of Saxon upwardly mobile thegnly classes and nobles would also have been selective in adopting and adapting Norman ways. Sykes (2011) has characterised the late Saxon period as a time when 'hunting, fowling and fishing became a metaphor for ownership of land, water and shore'. The new thegnly class (self-made, rising middle to upper class land owners) demonstrated their wealth through lifestyle and private estates. These were often smaller than those held by lordly classes where the concept of private ownership was well established through lineage and inheritance. Within enclosed estates ponds, moats and rivers with fish stocks were protected by restricted access, a clear sign of prosperity. Norman influence accelerated the privatisation of land into estates.

How did post-conquest changes affect freshwater fisheries and sport angling? There is much evidence, both documentary and archaeological, to indicate further growth of freshwater fisheries in the food supply and the first definitive case for sport angling in England. The initial growth in fisheries was observed in the Roman period from increased recovery of fish bones both freshwater and marine in the food supply; angling was recorded as a sport and entertainment elsewhere in the Empire. The few ponds at British villa sites may have been ornamental and also the venue for angling as a show of wealth in the Roman style. In Saxon England fisheries played an increasing role in food supply from the bone evidence, with freshwater fish associated with millponds, traps and proto pond systems (such as moats) for live storage. The Saxon sport angler has proved elusive, a practice shared orally yet to have a written history the evidence is largely circumstantial. Hoffmann (1985; 1997) has argued that sport fishing developed in England separately to Europe and, detecting an oral tradition in the early literature, considers that the first fishing handbooks fit into a 'cultural margin' between popular culture and a literate elite. It is evident from the

instruction on water conditions, bait and tackle in the first angling publications that angling was already long established with its own traditions and practices.

Growth in private fisheries accelerated after the eleventh century, initially as secular royal status symbols and adopted by the aristocracy. Pond systems were installed on monastic estates from the later twelfth century. Monks were socially equal to elite secular society through wealth, literacy and land ownership (Bond 2016, 29). Private ponds provided not merely a utilitarian food source for 'fish days': the majority of fish consumed were marine, often salted or pickled while freshwater species were food for the high table, especially as large, statement fish. They reflected status in culinary display, riparian rights in land ownership and were used in gift exchange. The migratory eel was so abundant in rivers it was used as currency in rent payments. Conversely Bond (2016, 35) has noted the number and size of ponds within monastic precincts does not always relate to the wealth and status of the monastery, citing rural monasteries with many ponds and wealthy Benedictine houses with only one. However, wealthier houses had outlying estates and tenants where fishponds could be part of the supply to monastic tables. The movement and value of freshwater fishes and their place on the table are detailed in surviving documents from aristocratic houses and monasteries, both diligent recorders of expenditure.

Foodways – feasts, cookery and recipes

Most of the surviving evidence for fish on the table is from recipes and records of feasts from elite households in increasingly complex and elaborate displays. Expensive spices were one way of showing wealth, as were elaborate dressing, colouring and even disguising of the food, presenting it as a tableau. The drama and ceremony of food were an intrinsic part of wealth display; excess was key – the opposite of modern, often minimal haute cuisine, as elite culture, though disguising ingredients to deceive the eye and taste buds is still used as chefs seek more inventive ways to present the same ingredients. At the lower end of society cheap salted herrings were common; freshwater fish were eaten simply cooked, flavoured with local herbs. Spices were expensive but the more well to do and gentry enhanced dishes with pepper, ginger, cloves, cinnamon and mustard. Pepper, which in modern times can be a very cheap condiment, was once so prized it was bequeathed and specifically mentioned in wills.

Menus for coronations, great feasts and medieval recipe books all include freshwater fish. Large and prized species including pike, bream and carp, which make an early appearance in royal kitchen accounts in the fourteenth century, all reflect the place of freshwater fish as food for the high table. The *Calendar of Liberate Rolls* record that, for the feast of St Edward's Day (13 October 1257), Henry III served 250 bream, 300 pike, and 15,000 eels (Dyer 1994, 110). The eels may have been for the lower tables. Documents of this period record food for the few not the many.

The fourteenth century manuscripts collated as *Curye on Inglysh* (Hieatt and Butler 1985) include a number of references to fish caught in rivers, such as sturgeon,

lamprey, eel as well as some obligate freshwater species including bream, roach, tench and pike. They are cooked and served in 'bruets' (broth), 'galentyne' (aspic) and with sauces of bread, ale and wine. The ingredients, as in Roman cookery, included a mix of sweet and savoury ingredients more typical today of Arab influenced cuisine, possibly an influence absorbed by the Normans in Sicily. The wedding banquet celebrating the marriage of Henry IV and Joan of Navarre, in 1403, included three fish courses in which bream, tench, pike, loach and trout feature among other migratory riverine fish such as sturgeon, salmon and lamprey and a variety of marine fishes (Drummond and Wilbraham 1994, 58). Carp are listed in Richard III's coronation feast of 1483 as 'gret carp and breme in foile' possibly a thin pastry. A sophisticated dish of this period was the 'glazed pilgrim', pike cooked in three ways, boiled at the head, fried in the middle and roasted at the end (Hammond 1993, 136).

Pond culture and glazed pike had little effect on much of the population of whom as much as a third may have been living largely off cereals with little meat or fish (Dyer 1994, 102). The price of grain was a crucial element in their cost of living. By default they were in almost permanent compliance with the rules of fasting, while the better-off expected to eat fish if they must abstain from meat. Bailey (1995) studied the income from the manor at Lakenheath, Suffolk, which exploited the rich fisheries of the Fens and supported the Prior and convent of Ely. As grain prices fell after the 1370s so did the market for eel and dace from their fisheries with some marshes abandoned. Neither eels nor dace were regarded as of much value as individual fish in freshwater fisheries, though eels compensated by volume. They appear on menus of elite banquets, either as 'grete' eels as a spectacle (probably large females), or as a less prestigious dish on the lower tables. Bailey (ibid., 14) suggests the timing of this decline indicates demand for eels and other freshwater fish was buoyant while grain prices were high relative to wages. The fall in grain prices made bread and pottages less expensive and the fish market price fell. Does this suggest a preference for grain over these fish, or was bread and other grain based food easier to store and more filling? This relationship might be clarified with further documentary research from other manors with fisheries to compare against grain prices and the cheaper marine fish, such as herring.

The price of fish bought in 1461 in the south Staffordshire residences of the bishop of Coventry and Lichfield shows eel at 1½d compared to herring at a farthing (¼d) and plaice/flounder at ½d each. Stockfish and saltfish were more expensive at 3d and 8d each, but bigger, being dried, and salted cod or related species (Dyer 1994, 106). Both roach and dace, caught in the Severn were the same price as herring in the early fifteenth century, a ¼d (*ibid.*, 108). The ubiquity of eel indicates it was consumed across society; it could be cheap, depending on price against size. Eel was also included in fish gifts between magnates with other more valuable fish, either as 'grete' eels, or perhaps 'bulking up' the size of the gift, value being represented by more prestigious fish such large pike or bream.

Archaeology – fish bone versus documents

The evidence again suggests that location is key over status and period. Sites close to the coast tend to have very few obligate freshwater species. As a generalisation it can be said that, while eel and marine fish predominate overall in fish bone assemblages, sites in Lincolnshire and eastern England generally tend to have a higher proportion of pike, cyprinids and, especially, eel from the rich fisheries of the Fens, as do sites in London near the Thames. In contrast, sites in and around Canterbury, though on and close to the Stour, have relatively few obligate freshwater fish, bone assemblages being dominated by eel, herring, whiting and flatfishes. A number of Canterbury sites are associated with monastic houses with ponds, but pond fish are poorly reflected by fish bone finds. In medieval Winchester, Hampshire, the bones reflect much the same paucity of freshwater fish, though the Bishop had many large ponds. Documentary records show continuous deliveries of marine fish to Winchester brought in from Southampton (Bunyard 1941; Stevens and Olding 1985). The compotus rolls (estate accounts) for the Benedictine monks of St Swithun's in Winchester for 1515 (Kitchin 1892) show that the fish eaten were almost exclusively marine species; salt salmon are listed regularly, eels appear only occasionally. 'Minnows', referred to frequently and of low value, may be very small fish rather than the species. An estimate by weight was made of the fish eaten by the Benedictine monks at Westminster Abbey, London (a much wealthier house than St Swithuns) using the records of 1495–1525. The contribution of freshwater fish was 7% cyprinids, 0.5% pike and 4.5% eel. Marine fish were mostly fresh and stored forms of cod and other large related species at 49%, whiting 23% and herring 8% (Harvey 1993, 48). From the evidence of these documentary sources the few fish bones recovered from freshwater species recovered in excavation are an accurate reflection of their contribution on the tables of the community.

Examples from fish bone assemblages add archaeological context to compare with the landform and documentary data. The excavation of a fishpond would seem to be the perfect site to find fish bones directly relating to pond culture. However they were regularly cleaned, the pond beds 'sweetened' by planting, fertilised by grazing cattle, then filled and restocked with fish. One rare record of fish recovered from sampling a fishpond fill is from Owston Abbey, Leicestershire (Shackley *et al.* 1988, 306), a small and poor Augustinian Abbey (1161–1536) with four fishponds. One pond was excavated and was sampled, likely representing the latter years prior to the Dissolution. A total of 27 bones and scales were identified from the lowest level of plant debris and clay and identified as rudd, bream, chub, roach, pike and perch. There was no evidence for carp and perhaps, being a poor house, they kept to the traditional species. The other archaeological assemblages from monastic sites described below all come from houses with fishponds, but the fish bones are from occupation deposits.

Eynsham Abbey (north-west of Oxford) was a Benedictine house founded in 1005, built over an existing minster church. The first abbot was Aelfric (955–1010) a revered

theologian, reflecting its importance. However at the Norman Conquest Eynsham suffered a decline and was possibly secular or a dependent house of Stow Abbey, near Buckingham. The renewal of their foundation charter in 1109 by Henry I led to much rebuilding, additional land holdings and prosperity, including a particular purchase of land in the early thirteenth century on which a flight of fish ponds was built. Recent surveys suggest there were six ponds lying east–west, connected by channels and fed by a diverted stream. The abbey also leased valuable river fisheries along the Thames, as did other religious houses. Religious observance required at least two to three fast (meat free) days each week and greater observance leading up to Christmas and Easter. Therefore fish played an important role in elite diet (including monasteries) on days when meat was forbidden. At lower social levels, if meat was not affordable regularly, fast days held little hardship.

Excavations at the site between 1989 and 1992 (Hardy *et al.* 2003) yielded a fish assemblage primarily from successive kitchen deposits. Sieving with a fine mesh ensured the smallest bones were recovered. Pre-Norman deposits had few fish, but more were found in the samples from the Early Norman Kitchen (eleventh–twelfth century) with 1347 fish bones identified from seven contexts, from the Medieval Great Kitchen (late twelfth–thirteenth century), 354 fish bones from five contexts, and from the later medieval kitchen (to the Dissolution), 4249 fish bones from five contexts. In the latter, 3198 bones came from a single pit deposit (Locker 1997c). Obligate freshwater species form a very small proportion of the fish: pike, dace, roach, chub and generic cyprinids (unidentifiable to species) were identified. As part of freshwater fisheries eel is most common and found in all contexts in all periods. In terms of bone numbers, in the Early Norman Kitchen and the Great Kitchen, pike is the most numerous obligate species and found in most contexts, though are few in the later kitchen. The peak for fish caught in freshwaters is found in the late twelfth–thirteenth century Great Kitchen; 13% of all fish bones are obligate freshwater species and 26% are eel. Their relative contribution declines in later deposits, as marine fish increase. Large pike were a status species on the table and in ponds could also be used judiciously to 'thin' overstocked waters. Dace, roach and chub, all pond fish, were present but the most valued native cyprinid, bream, was not identified and neither was the newcomer to ponds of the fifteenth century, carp. Most of the fish bones from kitchen deposits at Eynsham are from marine fish, mainly herring, cod family (primarily cod and whiting) and flatfishes. This is repeated through other fish assemblages despite the evidence for managed private ponds and fisheries.

A small number of fish bones were recovered from Battle Abbey, Sussex, a Benedictine house sited near the coast close to the site of William's victory over Harold (Locker 1985). They were all from marine fish except for eel and a single cyprinid bone. Documentary records show the monks bought quantities of marine fish both locally and farther afield, including from London (Searle and Ross 1967). One problem in using documents of purchase records is that entries are for accounting purposes and normally only list what was bought and 'free' fish from their own ponds are often

excluded. Records of meals, pond maintenance and stocking help give a more complete picture. There were ponds at Battle Abbey, and they had a weir at Peppering Eye. In 1275 at a cost of 2d the large pond was breached against the arrival of the king (*ibid*., 17, 42) perhaps to supply the royal table.

An Augustinian house, St Mary Spital in London just outside the city and 500 m north of Bishopsgate, ran one of the most important medieval hospitals in England. They housed the sick, needy, homeless and offered hospitality to pilgrims. St Mary's was on the route to Canterbury and used by travellers. Medieval hospitals operated in a wider sense than purely medical needs, providing a social and spiritual service including burial (Thomas *et al.* 1997). They may have had a fishpond on site (*ibid*., 99), but also owned estates outside London, supplying food to the hospital. Excavations took place in the area of the priory precinct and part of the hospital. The fish bone assemblage included a small number of cyprinids; chub and roach, but they were only found in a few contexts; pike was absent but eel was relatively common. The assemblage was primarily marine (herring) and estuarine fish (Locker 1992b).

Excavations at Windsor Castle after the fire of the early 1990s included fourteenth century kitchen deposits from the Round Tower. These are not the royal kitchens but possibly those of the Constable, so still high status (Locker forthcoming). This kitchen assemblage, all recovered by sieving, makes up 90% of the fish identified from the site. Obligate freshwater fish are numerically low (9% of identified fish) and include pike, tench, barbel, dace, roach and perch. Dace was the most common cyprinid (identified from the dentition of the pharyngeal bones) and probably most of the 'small cyprinid' category. The other cyprinids were few, barbel and tench, both larger species than dace and roach, were status fish together with pike and could have come from the ponds at the Castle sited within a former royal residence. The predominance of small-sized fish categorised as cyprinid suggests that few of these fish were part of a 'statement' meal where size mattered. However, both dace and roach were common fishpond stocks as can be seen in documentary data concerning maintenance and stocking in the thirteenth century (Steane 1988). Eel was very common in all deposits, 19% of all fish and, together with a few salmonid bones, the contribution of all freshwater fisheries in kitchen deposits was less that 30% of which very few were of a size to suggest status meals.

Large-scale excavations before development at the site of Norwich Castle at Castle Mall were primarily over the south bailey and its fringes (Locker 2009b; Popescu *et al.* 2009). An important Norman fortification, the castle was the administrative centre for a wealthy area. Deposits covered a wide date range from late Saxon, through the medieval to post-medieval periods; extensive sampling recovered a large number of fish bones. Marine species dominate the bone assemblage, the contribution of obligate freshwater fish is very low both by number and occurrence. Looking at periods from the eleventh–sixteenth centuries, despite a large number of samples (229) and over 5000 bones identified, there were very few obligate freshwater fish. Combined, pike, perch and cyprinid represented only 3%, (mostly pike) in the eleventh–twelfth

century deposits, 0.2% (only cyprinid) in the late twelfth–mid-fourteenth centuries and 3% (mostly cyprinid) in the mid-fourteenth–mid-sixteenth centuries. Eel is also low at 4%, then 3% but increases to 11% in the later period, but overall was found in less than a third of the deposits, which is unusual for such a ubiquitous species. One major feature, the 'Barbican well', dated to the mid–late fifteenth to mid-/late sixteenth centuries, with 1507 identifiable fish bones, was also dominated by marine species, reflecting other fish assemblages from the same period. The reliance on marine fish is not restricted to this part of Norwich, excavations at St Martin-at-Palace Plain and Fishergate tell the same story (Locker 1987; 1994b). Norwich was then navigable by river to the fishing port of Great Yarmouth, facilitating the supply of marine fish from the coast but, already beset by silting problems, this link was not to last.

Three other sites are cited to further illustrate the paucity of obligate freshwater fish remains. The fish from excavations at a site at Huntingdon, Cambridgeshire, provide some contrast in status (Locker 1996b). Huntingdon appears to have become an important *burgh* in the late Saxon period as a bridging point on the river Ouse lying 40 miles (64 km) from the nearest main port at Kings Lynn and the coast in general. By Domesday it was the most important town in the region, though there is some evidence for a decline over the next three centuries. Thought to be associated with a market of thirteenth–fourteenth century date, 2277 fish bones were identified from eight contexts. Only 11% were obligate freshwater fish, mostly cyprinids (8%) with a few pike and perch. The remaining fish were 20% eel and 67% herring; other marine and estuarine fish such as whiting and flatfishes are poorly represented. Evidence for freshwater fisheries is low and not in all contexts, also reflected in earlier smaller samples.

At The Brooks, Winchester, fish were recovered from samples taken from a series of tenements (Locker 1997d). Of thirteenth–fourteenth century date, 1234 bones were identified from 20 contexts. Typical of other medieval deposits within the city, obligate freshwater fish are very few, under 1%, eel is also scarce (2%). Marine fish: herring, whiting, large gadids including cod and haddock, plus flatfishes, dominate the assemblage. Documentary records show marine fish were regularly brought to Winchester from the port at Southampton.

Franklyn House in Canterbury, a secular site, reflects the typical paucity of obligate freshwater fish in assemblages from the city; no freshwater fish were found in the twelfth–fourteenth century deposits; a total of 142 fish bones were identified from 17 samples (Locker 2014b). There are single bones of pike, ruffe and two perch in later samples but no cyprinids. Herring, small gadids (especially whiting) and flatfishes are most common at this and many other sites in the locality. There is a good body of data from fish bone assemblages analysed from Canterbury. Excavated by Canterbury Archaeological Trust all samples were subjected to the same sieving protocol, so directly comparable. Although many sites are associated with monastic and clerical establishments, their immediate environs, home farms and hospitals with their own

fishponds, finds of freshwater fish are consistently few. Coastal supplies were readily accessible and the bulk of fish consumption comes from herring, whiting, plaice/flounder and larger gadids such as cod.

In the north, a review of the fish from sites at York spanning the twelfth–early sixteenth centuries indicates a decline in the number of freshwater (and migratory) fish in the bone assemblages (Harland *et al.* 2016). This is first observed in the mid-tenth–mid-eleventh centuries, with another decline in the fourteenth century. Cyprinids, pike, perch and salmonids virtually disappear, as does eel and the fish assemblages become dominated by herring and other marine fish brought inland. This may be attributable to decreasing water quality from pollution in the river as well as an increase in marine fisheries and their delivery inland.

These examples show that freshwater fish are found in low numbers, even when they occur in a number of contexts, compared to marine fish and eel from the higher status sites of Eynsham and Windsor and the more egalitarian the market square area of Huntingdon. A greater contribution of fish from the rich resources of the Fens might have been anticipated at Huntingdon though some other sites with fish assemblages analysed by the author around and near the Fens include obligate freshwater species and eel, they are not predominant, outnumbered by inshore and estuarine marine fishes such as small flatfish.

The bone evidence does not support significant consumption of obligate freshwater fish in terms of volume compared to migratory marine and estuarine fisheries. The data is compromised by differential preservation and often inconsistent sieving programmes, but that does not affect obligate species more than others. Poor preservation particularly affects the survival of salmonid skull bones, though vertebrae are more robust. The lamprey skeleton is composed of cartilage which does not survive but their teeth are very occasionally found in sieved deposits. There are records of gluts of lampreys, especially in the River Severn and possibly a royal death from a 'surfeit'. Henry I died in 1135, attributed by legend to over-indulging in lampreys, but it may just have been food poisoning. However, his death triggered a civil war over his succession.

Seasonal fisheries for shad and smelt, which migrate into rivers to spawn, are well documented and also represented in small numbers in the bone data, but in terms of overall supply they make a very small contribution. Another seasonal but rare visitor was the sturgeon, which belonged to the crown. They have a largely cartilaginous skeleton with some ossified skull elements, body scutes and fin spines, which do survive and are large enough to be seen by eye on site. To date there is no evidence that sturgeon bred in Britain and recent re-examination of archaeological and museum material has shown, through morphological differences in the surviving bone material supported by genetic analysis, that there were two species in Europe. It had been thought that all sturgeon remains found in western Europe were a single species, *Acipenser sturio*, but new evidence shows *A. oxyrinchus* is also present. They can hybridise, further complicating identification (Desse-Berset and Williot 2011; Thieren

et al. 2015). *A. sturio* has been shown to be more common along the Mediterranean with *A. oxyrinchus* having a more northerly distribution but with a degree of overlap.

The paucity of obligate freshwater species in fish bone assemblages, as shown in the above examples, is reflected in meta-analyses where the data from many sites has been combined, ameliorating inter-site differences. Individually it might be posited that certain sites would show a much more predominant emphasis on freshwater species, influenced by location and status. If a rural inland medieval village harvested whatever fish they could from local rivers or ponds this should be reflected in the fish identified from occupation deposits. At the other end of the social spectrum, owners of private river fisheries and ponds had a ready supply of fresh fish. In neither case does the fish bone evidence support obligate freshwater fish as the majority of fish in the diet. The examples given here have not been 'cherry picked' to demonstrate freshwater fish are few, they are quantitatively low across the spectrum. The poor accessed the cheapest of marine supplies, often stored herring, while in elite practice herring, cod and other marine fish were the major component of fish consumption. As symbols of luxury and elite living freshwater fish from private ponds were comparatively few, luxury elite goods are few by definition, as soon as they become commonplace they lose status.

Bones are just one form of evidence used to assess the role of fish in the medieval diet. They provide a counterbalance to the over-emphasis suggested by the landscape evidence from fishponds and dammed valleys outlined below and the documentary evidence for their maintenance and stocking. These reflect elite culture, the top 1–2% of society, overstating the case for freshwater fish. Their place was in gift exchange, as showpieces in feasts or status meals and as a sign of wealth in stocked ponds. Fisheries laws imposed closed seasons and banned obstructions to moving watercourses protecting all species but were primarily intended to protect migratory species, particularly salmon.

Landscape, status, fishponds and their management

Medieval fishponds were one of the signs of wealth, a badge of rank, also desired by aspiring middle classes (Bond 2016, 157). Ponds were located in parks and the estates of castles and monasteries, their specialist construction and maintenance was costly and pond fish were primarily a food of the aristocracy (Dyer 1994, 101). Initially they were secular and in the early part of the period major fishponds were primarily royal, greatly increasing in number in the thirteenth century (Bond 2016, 163). Royal ponds supplied gifts of fish to landowners and monasteries who, in turn, were expected to supply the royal ponds as required. Castle and manor house moats and millponds were used as 'stews' for storing fish (McDonnell 1981, 14). Recent research has identified a number of moats which, though not constructed for fish, were used for stocking fish and linked to fishponds (Coveney 2015). Landscape evidence for ponds has also been found in villages, but maintenance and stocking was best documented in elite

contexts. Store ponds were in use from at least late Saxon times, for growing on fish rather than breeding. The Domesday survey (1086) recorded around 6000 watermills in England, giving some idea of the potential numbers of stew ponds for mill owners (Wheeler 1979, 11) and 100 mills paid their rent in eels (Bond 2016, 162). Only bream are documented for the early period, later pike, tench, roach, dace and lastly, carp. Evidence from Yorkshire suggests that the end of the thirteenth century was a period of stabilisation in monastic pond construction, with minor gentry continuing to install them, reflecting upward mobility (McDonnell 1981). The Tudor period was to be the next period of growth in pond culture, with bream supplanted by carp as the favourite fish.

Royal ponds were established in a variety of locations and the king's fisherman was charged with their maintenance and stocking. Steane (1988) has mapped 33 royal fishponds in use between the twelfth and fourteenth centuries, showing a marked increase in the thirteenth century (*ibid*., 43). The earliest are clustered round the Midlands while those of later date tend to be more southerly, closer to London as the court became more sedentary. There are few south of London except for Leeds Castle, Kent and Kennington Palace, South London and more westerly at Woolmer and Lyndhurst in Hampshire, both formerly royal forests. The records show that few ponds supplied the royal table, most were to provide more breeding stock and used in gift giving. Various methods were used to catch the fish; drainage, nets, traps and lines, there is no evidence of sport angling on ponds. Live fish were transported either in barrels or wrapped in wet grass or rushes (*ibid*., 45). Carp were relatively easy to move, wrapped in wet moss they could survive out of water for long periods, another reason for their popularity. Pike, tench and perch could also be transported live (Abad 2002, 574). There was a belief that dead freshwater fish deteriorated faster than marine, which may have influenced the trend for live transport.

The later decline in royal fishponds has been attributed to three possible causes. A reduction in royal houses, the expensive demands of war, as ponds were costly to stock and maintain, and the increasing use of retail fishmongers as the court spent more time nearer London. Legal writs protecting salt and freshwater stretches of river *in defenso* for the king's recreation, banning fishing or fowling other than for the king's pleasure, seem to be more focused on hawking, fowling and taking swans than on fishing (Moore and Moore 1903, xiii).

Ponds with elaborate systems for stocking and breeding fish became a feature of monastic estates, to provide freshwater fish for the Abbot's table and guests during days of fasting. The monks at Glastonbury, Somerset, had access to rich fishing waters from the meres and waterways of their lands and the only surviving 'fish house' belongs to their tenure. Stone built and possibly constructed in the early fourteenth century, a lower floor was probably used for storing equipment and preparing fish while an upper floor was residential (Serjeantson and Woolgar 2006, 325). A sketch from 1826 shows an external stone stairway leading to the upper floor, likely lodgings for the man in charge of the fisheries. On the lower floor there was a fireplace with

a stone chimney shown in a sketch but no longer visible today. The building suffered over the centuries until recent conservation, but the quality of the building indicates the importance of the fisheries, which surround it and the status of the chief fisher.

Pond maintenance was costly, the bill for cleaning Westminster Abbey's ponds at Knowle, Warwickshire in 1294–5, £7 14s 11d, was equal to the price of 15 cattle, or the wages of a skilled building craftsman for 2 years, clearly unaffordable for most (Dyer 1994, 102). The bishops of Winchester held extensive ponds at the palace at Bishops Waltham (Pl. 4), in addition they held further ponds in 12 locations in Hampshire and five others over four counties. The majority of these were constructed in the late twelfth and early thirteenth centuries. Of these large ponds, Frensham, Surrey, was over 100 acres (40.4 ha) and Alresford, Hampshire (Pl. 5) 60 acres (24.2 ha), and were paid for from the profits of demesne farming, which supported landed estates whose status symbols included deer parks and fishponds (Roberts 1986).

The first bishop likely to have been involved in fishpond construction was Henry de Blois, Bishop of Winchester 1129–1171 who, as brother to King Stephen, was particularly privileged. The Winchester bishopric, together with other prestigious offices, most importantly as Pope Innocent II's legate in England (1139–1143), made him the richest churchman of his time, though he never became Archbishop of Canterbury (Riall 1994, 4). The thirteenth and fourteenth century pipe rolls (yearly accounts) show pond fish were reserved for the bishop and his close associates and were eaten fresh (Roberts 1986, 127). The ponds were fished most frequently in winter and the fish used for banquets or sent as gifts. Pike, bream, perch and roach were the most highly regarded. The ponds were not fished for sport and most fish were caught in seine nets (*ibid*., 131). Systems of pond management, such as selective stocking, draining and cleaning, were already practiced by the thirteenth century, as shown from records for Hampshire, and remained the basis for pond culture over the following centuries.

There were some changes after the late fourteenth century as ponds and river fisheries were increasingly rented out as a source of aristocratic income. River fisheries attracted higher rents (Dyer 1994, 107), possibly because there was little capital expenditure being naturally restocked (Currie 1991, 99). Ponds had to be seasonally stocked with fry or breeding stock (Bond 2016, 171), though Steane (1988, 46) has suggested the purchase of large numbers of fish, for example 300 pike to stock royal ponds in the mid-thirteenth century, is possible evidence that there were already fish nurseries. The enclosed nature and control of managed ponds give greater potential for productivity compared to open river systems. Some measure can be gauged from Hickling (1971, 19) for the former East Germany, where 14,000 of 165,000 ha of freshwater were fishponds. Figures for the late 1950s show the ponds produced 242 kg of fish per hectare compared to 21 kg from open waterways, and ponds contributed 61% of the value of freshwater fisheries. This return is possible with controlled stocking, no predation, additional feeding and the ability to 'harvest' the whole crop by draining the pond. Capital investment is greater for ponds than managing

river systems but there is potentially a much greater increase in yield. Pike, perch and cyprinids were the prime medieval pond fish. Bream was the favourite cyprinid before being supplanted by carp from the late fifteenth century which, according to letters from the King's Commission, by 1538, were stocked in late manorial ponds near Tichfield, Hampshire, that had been acquired by the king from the Abbey at the Dissolution (Currie 1988, 282).

Despite the potential for productivity, with documented advice on the cleaning and stocking of medieval ponds it has been suggested they were primarily a 'conspicuous luxury' rather than a commodity and not intended to maximise their returns (Currie 1991). The evidence is based on a study of the limited exploitation of some 400 acres (162 ha) of ponds between 1350 and 1400, belonging to the bishops of Winchester, suggesting status was their primary purpose. Water features were a key element in the medieval ornamental landscape. They were used as fish stores but were also part of a contrived waterscape to highlight wealth. Lakes could be used to enhance the view from the approach drive reflecting the main residence, giving an illusion of greater size. A viewing platform, sometimes known as a 'gloriette', was used to admire water features, strategically placed to form a vista (Taylor 2000). There are a few early examples of ornamental waters from the late twelfth and thirteenth centuries but most date from the later fourteenth century and became increasingly elaborate reflecting the wealth of the aristocracy, merchants and major clerics (*ibid*., 47). At Canterbury Cathedral Priory the 1150–1160 plan shows an oval fishpond in the precinct surrounded by 12 semi-circular bays, possibly symbolising the Apostles and there are also examples of monastic herb gardens surrounded by a moat (Bond 2016, 44). These medieval 'gardens' clearly played in important role influencing design in later ornamental parkland estates in which water was both practical and ornamental, culminating in the landscape movement of the eighteenth century. In some 'Brownian' (an open landscaping style popular among the wealthy created by Lancelot 'Capability' Brown in the eighteenth century) landscapes their medieval origins can be still be traced: at Stow the faint remains of a moated palace belonging to the Bishops of Lincoln and three large and two small ponds from the 1180s still survive (*ibid*., 165).

Managed enclosed water systems stocked with freshwater fish were increasingly a part of the privatisation of land restricting supplies of formerly free 'wild foods'. Ponds were often sited close to the house to deter poachers or within deer parks, which became very fashionable, also housing warrens, dovecots and ponds. The valuation of Kendal Castle in Cumbria in 1274 included fishponds, herbage and fish traps sited within the parks (Winchester 2007, 168) indicating this was a countrywide development.

It is the surviving landforms (traces of ponds, associated channels and dams within the boundaries of ancient estates) and their documented use by the top 2% of society, that give lie to the importance of freshwater fish in general diet. In practice, as we have seen from the archaeology, freshwater species played a small part in overall fish consumption. With open freshwater systems increasingly restricted through private

land ownership it is not surprising that obligate species are generally very poorly represented in fish bone assemblages in comparison to migratory and marine fish. Enclosure and estate building had a detrimental effect on the landless and their access to fishing. McDonnell (1981, 13) describes the gradual erosion of common fishery rights in Yorkshire, where major landowners, including Fountains Abbey, aggressively pursued a 'take over' of waters where manorial tenants had long held fishing rights.

Freshwater fisheries, in terms of volume, were largely for the ubiquitous eel and in certain areas, such as the River Severn, for salmon, though the latter (and trout) are poorly represented in fish assemblages in part because their skeletal fragility leads to poor survival. The importance of salmon is evident in early and continuing legislation and royal decree to keep spawning rivers clean, free of obstruction and the protection of young fish stocks in general, which led to conflicts over traps and weirs. In 1376, under Edward III, legal measures were taken to restrict the taking of any fish fry, which had been described as so plentiful they were used to feed pigs (Moore and Moore 1903). English salmon stocks may have been in decline from as early as 1200, unlike in Scotland, where the prevalence of pastoralism over agriculture helped retain the water quality in rivers. They were not subject to the same polluting run off from fields and their salmon stocks remained strong (Hoffmann 2015).

The importance of river fisheries is largely attested from legal cases referring to large numbers of 'fixed engines', weirs and kiddles, trapping fish and blocking waterways. The main species referred for their abundance are eels and sometimes salmon. To give an example of the proliferation of 'fixed engines' along the middle stretch of the River Severn within Shropshire, 41 weirs have been recorded, of which at least five appear in Domesday (valued in eel renders), ten in medieval charters and 25 in a list of 1575. Some were closed, others open or had a bylet or gutter for navigation and through which migrating fish, eels and salmon, could pass (Pannett 1988). Many of these weirs were privately owned and some belonged to the town.

Ponds were not only an elite private practice but, in that context, are better documented than store ponds in villages, or manors, with some landscape evidence from deserted medieval villages (Aston and Bond 1988, 427). A study of the parish of Tanworth in the Forest of Arden from 1086–1350 revealed 19 fishponds mostly run by freemen and wealthy tenants. Bream, roach and tench are cited and the fish appear to have been used for their own tables and to generate income (Roberts 1966). This is an unusual surviving example of fishpond management and commerce by individuals free from feudal ties and a sign of upward mobility in a very stratified society. There is some evidence for an increase in the leasing of ponds from the fourteenth century which points to commercial use. At that time fishmongers in Southwark, London, just south of the River Thames used ponds (stews) to store live fish for sale (Currie 1991, 99).

The overall impression is of a landscape pocked by fishponds and traversed by rivers, which were often blocked by weirs and mostly under private ownership. This suggests a plentiful supply of freshwater fish, though not always openly available. Nevertheless the bone evidence shows marine fish were brought inland from at least

the Late Iron Age. The growing demand is reflected by the increasing numbers of bones from marine fish recovered from excavations and documentary records. The increase in sea fishing was a response to meet specific demand and separate to the freshwater fish market, which could not have fulfilled overall demand even before the preference for marine fish. Increased population growth and urbanisation spiked a dramatic increase in marine supply from the eleventh century (Barrett *et al.* 2004). This was not matched in the bone data by a similar increase in obligate freshwater species, which became an increasingly specialised demonstration of elite power. Recent meta-analyses of fish bones from London sites indicates that the rise in marine fisheries from the eleventh century was not influenced or affected by the freshwater fishery supply (mainly represented by the migratory eel), which showed no decline until the twelfth century (Orton *et al.* 2017).

The ideal pond fish – carp

The newcomer in pond culture was the common carp, brought to western Europe from the Danube, the area of native distribution (Hoffmann 1995). There is evidence for significant freshwater fish consumption from prehistory in this area, with many carp bones from large fish at Roman and earlier sites in the Danubian area of the Empire (Pannonia). Ponds were a feature of Roman culture and it has been postulated they were kept in villas in Italy, but there is, to-date, no bone or other supportive evidence for carp to suggest they were kept in ponds; the few bones may have been in an imported fish product. The occupying Roman force commonly caught and ate carp from the Danube, along with two other species which would be introduced to Britain in the twentieth century: wels and zander. No reliable evidence has yet been found for a pre-medieval presence of carp in western Europe. The movement of carp westwards was the result of the development of pond culture and it was already well established in western European ponds by the time of the first records in England. The numbers of carp and other fish involved in commercial supply from individual pond systems in Europe runs into many thousands as early as the mid-fourteenth century (Hoffmann 2002, 15). Such quantities are never matched in the English records, perhaps because marine fish could be supplied across the country, within the estimated pre-industrial 150 km range for delivering fresh unrefrigerated fish suggested by Hoffmann (1995, 65), unlike vast inland tracts of Europe. However, carp was a versatile fish, ideal for pond culture, with low oxygen requirements and a quick growth rate and it was to surpass all the other cyprinids in popularity. At this time it was fully scaled, of muted colour and small compared to today's angling giants. Currie (1991) has shown through documentary evidence that the carp was well known in elite circles in England by the early sixteenth century.

There are three separate contexts in which carp are recorded: on the table, in ponds and in the bone record. An early record of carp on the table is found in Arthur Bryant's *The Age of Chivalry* where he cites the enthronement feast in 1242, of John,

Archbishop of Canterbury, which included 100 carp, though some doubt has been cast on the veracity of this record (Langridge 2006, 145). A more reliable early record of carp is dated 1346 from the kitchen accounts for the king's kitchen of Edward III (National Archives and Public Record Office CNA PRO) for 13 October which records *vii pik' et carp xxii.s.* (Stephen Brindle pers. comm.) Carp also featured in the coronation feast of Henry VI at Westminster in 1429. None of these is definitive evidence for an early introduction as they may have been a gift for the feasts from abroad given the relative ease with which they could be transported live. They were evidently an elite feast food in England from at least the fourteenth century but not necessarily stocked in ponds. Across the Channel, in 1258, carp fry were stocked at Igny-le-Jard on the River Marne for Count Thibault V of Champagne (Hoffmann 2005, 26); evidence they were already well established in ponds in France. The earliest record found, to date, for carp stocked in ponds is 1462, by the Duke of Norfolk, whose East Anglian estates had a long connection with the Low Countries from where these fish were well established and may have been imported (Currie 1991, 102).

Carp were rare (adding to its status) in England in the fifteenth century. In the second edition of the *Boke of St Albans* (1496) is found *The Treatyse of Fysshyng wyth an Angle*. This is generally described as the earliest specific comprehensive published tract on angling. The author is reluctant to give advice on carp, having not had much experience, noting that they are 'an evil fish to take', difficult to hold on tackle. These same attributes were still used as a reason to avoid carp in the nineteenth century, but have made them such a popular anglers fish today. By 1600 Taverner considered carp the best of pond fish.

For the early sixteenth century the journal of Prior William More remains a key source of evidence on monastic pond stocking (Hickling 1971–2). Prior of Worcester 1518–1536, he had several fishponds and a moat built round his manor. His journal includes the costs of stocking his ponds and their upkeep. The most numerous fish were store eels and tench, then roach, bream, perch and pike. He also recorded the number of fish caught and how often the ponds were drained and cleaned. In 1531 the Prior also stocked carp, but only on a small scale (*ibid*., 120) and says little about them. They still may not have been very common at this time and remained essentially a pond fish, restricted in distribution. The fish bone evidence for carp is poor, even by cyprinid standards and rare in archaeological fish bone assemblages.

The Cyprinidae share many common skeletal characteristics, making it difficult to separate to species. However the toothed pharyngeal bones are distinctive and the basis of most species specific identifications (Pl. 3). The identification of carp therefore is not any more difficult than other cyprinids such as roach, dace, bream, tench and chub, all of which are more common in bone assemblages than carp. A fifteenth century context from an excavation at Ely, Cambridgeshire, included carp (Humphrey and Jones 2002). A later pit from an early Tudor House (1490–1550) of a courtier at Little Pickle, near Bletchingley, Surrey, contained a serrated dorsal spine from carp (Bullock 1994). At Hill Hall, Theydon Mount, Essex, the home of Sir Thomas Smith, a

few carp bones were found in deposits dated 1574–5, and also from the seventeenth century (Hamilton Dyer 2009, 347). Notably two of the sites are in the east of England in the region where the Duke of Norfolk first stocked carp in 1462.

The latest research on crucian carp (*Carassius carassius*) suggests it was introduced to England about the same time as common carp, possibly in a consignment of the latter, either accidentally or deliberately (Jefferies *et al.* 2017). They first appear in the literature in the 1700s, but do not seem to have been adopted with the same enthusiasm in English pond culture as the common carp. In contrast they were popular in northern Europe as they withstand lower winter temperatures much better than common carp (Olsén and Svanberg 2016).

Angling – is it hunting?

Hunting had developed into an elaborate aristocratic ritual far beyond the acquisition of food (Griffin 2007, 6). Private land ownership played an ever more important part in retaining exclusivity. Angling is arguably part of a hunting tradition when practised in open waters and the fish is killed, though it has been suggested that only fly fishing is within the spirit of hunting (Almond 2011, 3). The Normans brought new hunting practices, building on established aristocratic ritual and ownership. The skill sets required for the 'making of a gentleman' in outdoor pursuits could have raised the status of angling as an activity of refinement though it was not included in hunting literature before 1496.

Angling was the only aspect of hunting deemed acceptable for clergy, skilled yet contemplative and comparatively bloodless, compared to the warrior influence in mounted chase for deer or boar. Social status, linked to land ownership and wealth, was to be a key influence in the separation of fly and coarse fishing from the eighteenth century, in which the former became more associated with private land ownership and may be linked to why some consider fly fishing to be closer to hunting than bait fishing.

Angling literature

Written works specifically on angling appear towards the end of the period. Earlier fishing tracts include Aelfric's *Colloquy* (*c.* 980, by the Abbot of Glastonbury). This instructional language text was written in the form of a dialogue including a section on fishing, but as a livelihood not sport. In Piers of Fulham (*c.* 1400) nets are mentioned before hooks, so not necessarily sporting. The 1496, second, edition of the *Boke of St Albans* with the pamphlet *The Treatyse of Fysshynge wyth an Angle* has become the reference point for the beginning of the English sport angling literature, though there are earlier angling references both from England and Europe. A specific angling literary tradition developed in England before it did in Europe, though the earliest hunting guides are European and aristocratic. Production of angling books was

initially slow, increasing to meet market demands as printing costs became cheaper and literacy levels rose, with plagiarism rife in many cases.

The 'author' of the *Boke of St Albans*, Dame Juliana Berners, supposedly an abbess, has been the subject of much conjecture though is now universally considered fictitious (Hoffmann 1997, 6). Some refer to her as 'legendary' and Turner (2009) explores the history of theories as to her identity, some more compelling than others. However, ultimately there is no substantiated evidence as to who wrote this book. The section on angling, possibly written in the early fifteenth century and added to the second edition in 1496 was printed by Wynken de Worde, whom it has been suggested was the author. There are two surviving manuscripts, a copy in Yale and a fragment in Oxford (Herd 2003, 43). Though its origins are unclear it is generally regarded as the first written instruction for sport angling. It meets the definition of angling as leisure and pastime (Hoffmann 1985). The *Boke of St Albans* was for the wealthy, on all aspects of hunting following on in the tradition of Gaston Febus, Count of Foix and Viconte of Bearn in south-west France who wrote a *livre de chasse* in the second half of the fourteenth century. The latter was fully illustrated and is used as a template for understanding French hunting practices of the period. An English version, *The Master of Game* by Edward, Duke of York, with some additions, appeared in the period 1406–1413, but neither mentions angling. These earlier hunting tracts highlight the point made by Haskins (1929) that, in the Middle Ages, sport grew out of combat and by the twelfth–thirteenth centuries had its own Latin literature. Angling as sport did not fit into this concept and initially must have been largely transmitted orally.

The angling section in the *Boke of St Albans* has many aspects recognisable to the modern angler, both coarse and fly. There are detailed instructions on the habits of different fish, rod making, baits, flies, tackle, lines and hook making. The book reflects a wealthy readership, recommending heating and tempering steel pins of different sizes to produce a variety of hooks which were considered the most difficult part of tackle production and shows angling to be a well established, sophisticated and skilled craft steeped in established oral tradition. Hoffmann (1997, 345) has noted some oral traits in written tracts. Earlier manuscript references to angling, with regard to baits and dyeing of lines of fourteenth and fifteenth century date were discovered and studied (Braekman 1980). The *Treatyse* appears to represent a compilation of earlier brief accounts on aspects of angling brought together into a single style (Hoffmann 1982; 1985, 882), acquiring the accolade of the first book on angling. There is earlier written European evidence for sport fishing from France and southern Germany, as early as the 1200s (Hoffmann 1985, 886) showing a detailed knowledge of fish management and angling methods (Hoffmann 1985, 886; 1997). A recent discovery is the *Haslinger Breviary* from Austria, a devotional book with fishing texts, including advice on fly tying and baiting of both hooks and traps through different months. Published around 1460 it clearly pre-dates the *Treatyse* and, though in the context of food than sport, demonstrates the longevity of established practice to best attract

fish and includes the efficacy of roasted hens' intestines for carp (Hoffmann and Kidd 2016; Hoffmann 2016). Hoffmann draws attention to the similarity in the fish catching texts known from Italy, France, Spain, England and German speakers between the 1200s and 1600s (*ibid*., 20). A later work from Spain by Basurto in 1539 is in the form of a sporting dialogue, debating hunting and fishing and a style later used by Walton in 1653. It is not the intention here to report on detailed analyses of texts already comprehensively covered more expertly but to highlight their connection to English angling literature.

The *Treatyse* also warns against fishing in poor men's private waters, ponds and stews without permission and against taking fish from traps which, even if in public waters, belong to the owner of the trap. It urges the reader not to deplete stocks, all good fishing practice, recommending the angler to be relatively solitary, playing to the contemplative side of the pastime. Clearly angling practices were well established and codified. Other pursuits of the period that might be legally or otherwise practised across the wider spectrum of rural society included taking small birds by liming, ferreting for rabbits in warrens, often poaching (Bailey, 1988). At this time the rabbit was relatively scarce, usually enclosed and valued for both flesh and fur. Deer, wild boar and hare were the main quarry of medieval landowners, the aristocracy and royalty (Griffin 2007, 56). Boar hunting was so successful they were extinct by the late thirteenth century and later re-introduced from the Continent (Albarella 2010, 66). Landless hunters either risked poaching or hunted and trapped smaller animals and birds that were not protected for the ritualised chase and slaughter practised by their betters. The trapping, netting and angling of freshwater fish, either legally or illegally by raiding private ponds, shows angling as a sport alongside food provision. The making of rods, horsehair lines, floats, weights and hooks recommended by the *Treatyse* were all easily adapted to other more readily available materials. It was a sport, whether fly or bait, not then circumscribed by class divisions, which influenced later angling practices but similarly influenced by restricted access to some waters.

Art and symbol – lineage and religion

Fish in art in medieval England are most evident in church wall paintings. Fish and anglers are often shown in the scene of St Christopher carrying the infant Jesus through the water (Buller 2009). The condition of the paintings varies, some were lime washed in the Reformation, inadvertently protecting them, to be revealed by subsequent restoration. Church wall paintings, together with sermons, connected an illiterate congregation with religious themes. The fish are often difficult to assign to species because of their poor condition or their schematic depiction. Marine fish have been identified as well as some found in freshwater: pike, eel, sturgeon and lamprey. The distinctive outlines of flatfishes and eel are easily identified. Many scenes include a small image of an angler with rod and line. Dating is often problematic though the style of clothes gives some clue. Some of the paintings were first recorded in the

nineteenth century when they were in better condition, noting details which have since faded.

The Normans brought a new device to show status: heraldic arms. Further evidence of prosperity was shown by the building and endowment of churches by powerful families where they displayed their heraldic arms to advertise their lineage and power. The development of heraldry, beginning in the twelfth century, saw those entitled to bear arms adopting symbolic devices representing the family name. These were used to decorate clothing and pennants but also churches and other buildings associated with the family. They became hereditary, adding status through lineage and, with marriage, often evolved to combine devices of different families, which sometimes had a play on the family name. These were highly structured, with specific terminology to describe colour, form and position. A number of animal images were used, including those of the hunt and also fish, both marine and freshwater. Fish were a significant part of this elaborate show of status and collated in a book of the mid-nineteenth century (Moule 1842). Pike were a common device and a play on the name Lucy, as the pike was often known as a *luce*. Chaucer's Franklyn (written in the late fourteenth century), a man keen to show off his wealth, had bream and many a *luce* in a stew (Coghill 1977, 32). St Leonards Church, Charlecote, Warwickshire, the Lucy family seat since the twelfth century, has armorial stained glass depicting pike. The pike was also the emblem of Sir William Gascoigne (1350–1419) chief justice to Henry IV (Pl. 6a, after Moule 1842, 63). The Scottish name for pike, *ged*, led to its adoption as a device by families such as Gedds and Geddes.

Three chub, three scallops and three shoveller ducks made up the arms of the Chobb family (*ibid*., 91) around 1440. Roach represented the de Roches (*ibid*., 92), both in conjunction with other devices and on its own. These two fish had obvious connections with a play on the family name. Some have less obvious links such as barbel, the device of the Colstons (Pl. 6b, after Moule 1842, 75). Three bream were the device of Geoffrey de la Mare, Abbot of Peterborough, sited below the abbot's mitre on his arms, possibly a reference to ponds. Whether families with a fish as an armorial emblem made a point of keeping and serving that species, demonstrating the connection to their arms, is unclear. The size of a fish was no bar to heraldic ambition as both the minnow and the loach were used.

Moule does not include carp in English Heraldry, but they are found in Europe, for example three carp, horizontal, on the Polish Zorzbog family crest (Cios 2016, 74). Perhaps as an introduced species to England it was initially uncommon therefore not representative of the English landed classes, despite its later popularity? Randle Holmes, in his *Academie of Armory* (1688) cites the carp as an emblem of hospitality, denoting food and nourishment.

Fish motifs have been used to decorate medieval pewter spoons. One from Beverley (North Yorkshire) of eleventh–twelfth century date depicts three fish hooked from a single line. From around the medieval waterfront in London, many spoons have been recovered including one showing two fish attacked by two birds of prey (mid-

thirteenth–fourteenth century) and another (eleventh–twelfth century) showing a single fish. Two of the fish spoons show fish with sharp teeth and it has been suggested they represent salmon or pike. All the fish decoration is on the inside of the spoon bowl, with more schematic decoration on the underside (Egan 2000). Whether these are Christian symbols or merely decorative is unclear.

Conclusion

At the beginning of the period the acceleration in the privatisation of land and increasingly ritualised behaviour, including hunting practices brought by the Normans, deliberately excluded major landless sections of society who had no common rights. For them hunting became an act of trespass and poaching, with harsh penalties, particularly regarding deer, boar and hare. Within elite society the growth of fishpond culture facilitated gift exchange; they displayed their wealth through pond ownership and their maintenance, itself a considerable expense, supplying their high tables with large fish from their own ponds. Fish were also part of the new heraldic symbolism, underlining their status as part of private estate holdings, while ponds were an increasingly important statement of power as both ornament and food store. Landscape archaeology has revealed evidence of the complexity and size of ponds on monastic and secular estates. However fish bones recovered in medieval excavations consistently indicate marine fish were more commonly eaten. Freshwater fish became part of a two-tier system, some caught freely in rivers and streams publicly accessible, while in another context the same species kept in private enclosed waters were part of elite symbol and incorporated into symbolic displays of lineage.

The written evidence for angling as a sport is very limited and centres on the progenitor of all angling books *The Treatyse of Fysshyng wyth an Angle,* which displayed a strong angling tradition for the first time collated as text. In the next chapter evidence will be shown for the beginnings of the evolution of freshwater species from primarily food to sport and, increasingly, as ornament.

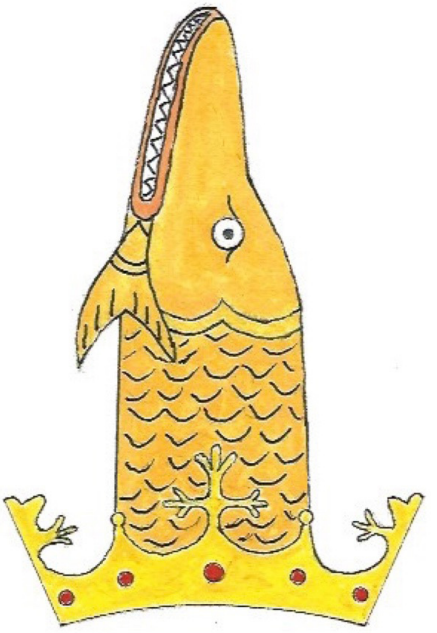
Plate 1. Archaeological fish sample from a sieved deposit (photo: author)

Plate 2. Dentary and examples of vertebrae from reference fish. Top L: pike (58 cm); bottom L: perch (35 cm); top R: tench (41 cm) bottom R: barbel (65 cm). (author's own specimens)

Plate 3. Cyprinid pharyngeal bones from reference fish: Top L: carp (50 cm); R: tench (41 cm); Middle L: bream (47 cm); R: barbel (65 cm); Bottom: roach (35 cm) (author's own specimens)

Plate 4. Bishop's Waltham ponds, Hampshire (Google Earth)

Plate 5. Old Alresford pond. Hampshire (Google Earth)



a.

b.

Plate 6. a. Demi luce rising out a ducal coronet. Part of the heraldic device of the Gascoigne family of Gawthorpe (after Moule 1842, 63, by G. Locker), b. Two barbels respecting each other, conjoined by collars and chain pendant. Heraldic device of the Colston family (after Moule 1842, 75, by G. Locker)

Plate 7. View of Nonsuch Palace, Surrey, with fish sellers shown in the panel below (from Braun and Hogenberg 1598 Civitates Orbis Terrarum *vol. v, based on a drawing by Joris Hoefnagel, 1568). https://commons.wikimedia.org/wiki/File:Nonsuch_Palace_Joris_Hoefnagel.jpg)*

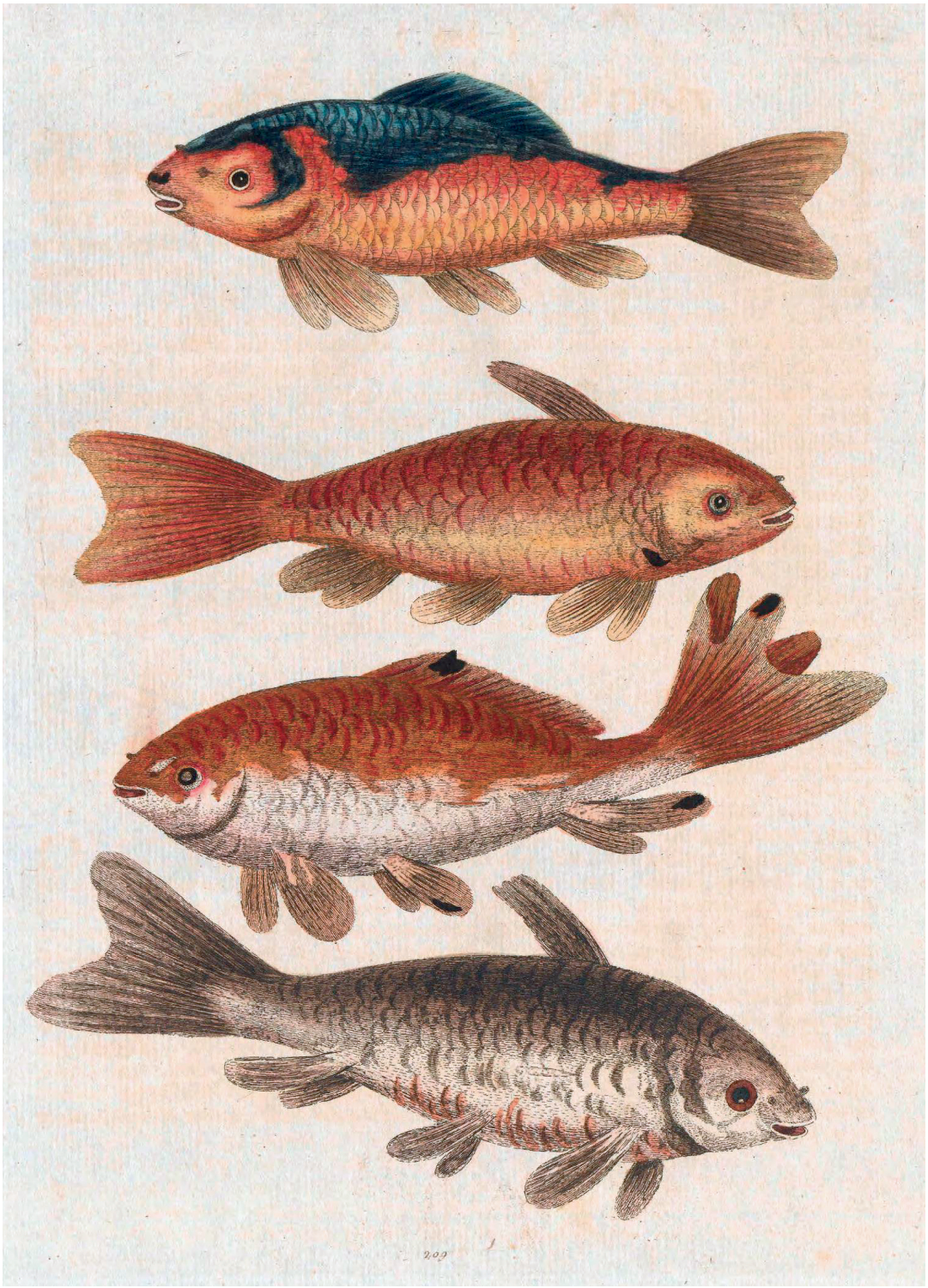


Plate 8. Chinese Goldfish (Edwards 1751; DOI http://doi.org/105962/bhl.title.115782 held by National Library Board Singapore)

Plate 9. Frontispiece of The Experienced Angler or Angling Improved *(Venebles 1662. http://www.biodiversitylibrary.org/item/70181#page/40/mode/1up held by UCLA Library)*

Plate 10. Angling *by Wenceslas Hollar (1620–1670) (http://commons.wikimedia.org/wiki/File:Wenceslas_Hollar-Angling_(State_1).jpg)*

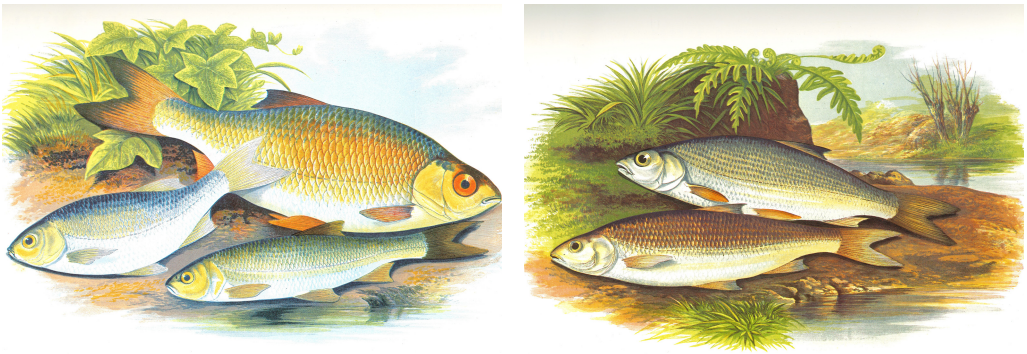


Plate 11. a) Azurine, dobule and rudd; b) Graining and dace (from Houghton 1879)

Plate 12. a) Carp; b) Pike (from Houghton 1879)

Plate 13. Live Baiting for Jack *(engraving R. G. Reeve (1803–1889) from a painting by James Pollard (1792–1867); author's own print)*

Plate 14. The Goldfish Seller *by George Dunlop (1835–1921) (http://upload.wikimedia.org/wikipedia/commons/8/8a/Leslie_George_Dunlop-The_Goldfish_Seller.jpg)*

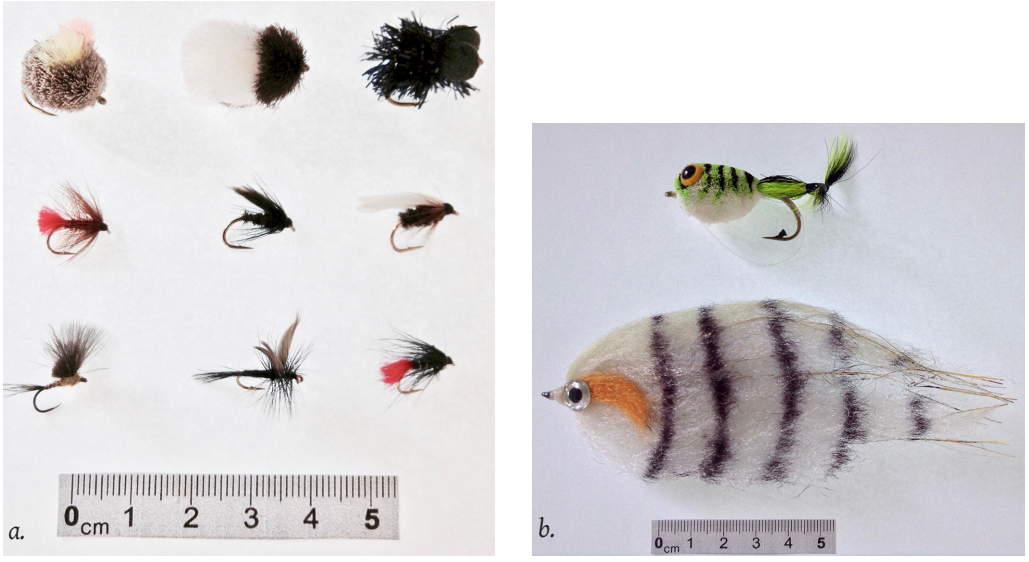


Plate 15 a) Flies: Top row L–R: Bonio, Breadcrust, Blobby black (for carp); Middle row L–R: Soldier palmer (chub), Alder (chub), Coachman (dace, chub, roach); Bottom row L–R: Olive quill (dace), Black gnat (dace, roach), Zulu (chub) (author's own examples); b) Perch fry and 'Messenger' frog bait for pike (authors own examples)

Plate 16. Poppleton lakes, Yorkshire (Google Earth)

Chapter 5

AD 1535–1740s. Reformation to revolution

Introduction

This period covers the reformation of the monasteries to the beginnings of the Industrial Revolution as marked by the building of canals, which opened new venues to the coarse angler, and encompasses the beginnings of early modern England. This is also the period when there is a much greater range of documentary and material evidence for freshwater fish. The archaeological bone data becomes increasingly a lesser part of the source material.

New fashions for great houses, gardens and estates included lakes created for angling and other leisure pursuits as well as for storing fish for the table. Some ponds were functional while others were purely ornamental. Both were stocked with carp and other cyprinids. Evidence for angling becomes more visible through literature, part of a general growth in book publishing; many booksellers were initially based round St Paul's Cathedral in London. Angling books catered for the 'all rounder' using both fly and bait. Fishing tackle was first stocked in haberdashers' shops based in London, but these were soon overtaken by specialist angling suppliers, expanding their stock to meet all angling demands and opening businesses in the provinces.

The growth of literacy levels and democratisation of books through increased production and lower pricing was to attract a broader public and has left a rich record of cultural change. Whereas manuscripts of recipes, account books and records of royal feasts were a key source of culinary practice for earlier times, cookery books now appear. They are still for prosperous households, but no longer exclusively aristocratic and start to be marketed for women. This was a time when men were at the helm in elite cooking, whereas women were home cooks, or secondary to the chef. These new manuals offer advice on carving, serving, seasoning meats and their dressing (Thirsk 2007, 11). Household accounts and prolific diarists are other useful sources of food served including fish.

Cooks, accountants and diarists

A cookbook from the 1550s, *A Proper Newe Booke of Cokerye,* survives from the library of Matthew Parker, Master of Corpus Christi College, Cambridge (1544–1553) and Archbishop of Canterbury (1559–1575). He and his wife, Margaret, were known for their hospitality and she is thought to have used this book when entertaining. The courses for a fish day included many freshwater species, both obligate and migratory. Suggestions for the first course are river lampreys in a broth, salted salmon, eels and roach on 'soppes' (toasted bread), perch and pike. For the second course bream, carp on 'soppes', roast eel and lamprey, fresh sturgeon and baked lamprey. Marine fish included sand eels, smoked herring, flatfishes, mackerel (salted), conger, ling and 'haburde' – forms of salted cod or ling (Ahmed 2002, 39). These menus demonstrate some ways both freshwater and marine fish were served on sophisticated tables at this time.

The English abroad were also serving freshwater fish. A manuscript discovered in Tarbes, France, compiles the recipes of two English ladies, Elizabeth O'Brien, from 1680, and Sarah Henrietta Dudley, from 1743. It seems likely they were visitors to the Pyrenees to take the waters, then very much in vogue. Carp feature in two recipes, one involves bleeding the live fish; great value seems to have been placed on the blood as a base for liquor in which the fish was boiled. The second is a sauce for carp, primarily comprising claret, anchovy and onion. The only other fish is tench, also bled, there is no instruction that it should be alive, though they are left to bleed for an hour or two in white wine vinegar and stewed after removing the slime from the skin (Tournebize and Raynaud 2001). Tench have excessive slime compared to other cyprinids that was once thought to have medicinal properties and rumoured to cure other fish by touching them. Consequently it was sometimes called 'the doctor fish' and Walton, in 1653, refers to tench as a 'physician' among fish. Curative properties aside, tench were served at table, though not always rated the best of the cyprinids. This recipe collection shows freshwater fish served on elite English tables in France, during the late seventeenth and eighteenth centuries. They remained popular much longer in Europe than in England where the focus was increasingly on marine fish, a trend starting, as we have seen, in the eleventh century.

In England, Stow, writing in 1598 (1603, 8), described a 'very good store of fish of divers sorts which many men still living can testify' were kept alive outside London's city walls in the 'towne ditch'. The ditch was open at that time and without 'wall or pale' (fence) and supplied freshwater fish. By the time Stow was writing the ditch had been cleaned and the banks let out. The Swiss physician Thomas Platter in *Travels in England* in 1599 (1937, 175) records a practice he observed in a London fishmarket. Live pike (of which he notes the British are very fond) are slit open, and the guts placed in the hands of the prospective buyer to judge whether they are sufficiently fat. The fish is then sewn up with needle and thread kept ready for use. Should the guts look too thin the fish is thrown back in a basin to rub against tench, kept ready

for this purpose, to benefit from the healing mucus. The pike were said to recover and live for a week or even months (doubtful) after this cruel practice, for the next potential customer. A contemporary engraving (Braun and Hogenberg 1598; Pl. 7) shows Nonsuch Palace, Surrey (based on Hofnagel's original drawing) and, below it, a detail of some sellers outside the palace includes a fishwife slitting open the belly of a fish in just this manner. Although the fish is not easily identifiable, under the fish seller is written *lupos pifces*, 'lupos' refers to wolf and the habits of the pike, also called a 'luce', shown in Plate 7.

However, by the eighteenth century, freshwater fish are not recorded much in the diet of the 'ordinary Londoner'. An unusual data source for daily meal routines, the records of the criminal court of the Old Bailey, London, reveal that at dinner time, the main meal in the middle of the day, if fish was eaten it was likely to be salt cod, salmon or sprats. Salmon was the favoured fish for supper, we do not know if the salmon was fresh or salted, which was cheaper than fresh as were red (hard smoked) herrings or mackerel compared to the fresh fish (Thick 2016). However at both dinner and supper meat seems always to have been preferred.

Household accounts are another source of evidence for the keeping and consumption of freshwater fish. Returning to the Tudor and post-Reformation period, the accounts of Sir William Petrie (1505–1572), who rose from the ranks of Devon franklyns (freemen) to be a secretary to Henry VIII, are revealing. A Catholic in his later years, he survived and flourished through the religious turmoil of the period. In 1561 Elizabeth I visited his country estate at Ingatestone Hall, Essex; still occupied by the family today. As with all royal progresses, the visit came at great cost to the host. The estate had a number of stew or store ponds, some were within the orchard and one was the 'brewhouse' pond, the fish fed on brewers waste. However, estate accounts only record fish that were bought (usually marine) or received as gifts; in 1548 Petrie received a gift of 12 carp, nine bream, five roach, three perch, a tench and a pike. Whether these were live for his ponds or went straight to table is not clear. Records of meals eaten from December to January in the 1550s record only marine fish, including a wedding eve feast held at the hall on a Saturday, a fast day. Post-Reformation fish days were secular and reinstated to encourage the fishing industry. The wedding feast on the Sunday was all meat and fowl, no fish. There may be no record of freshwater fish on the table because they were 'in-house' and therefore not costed. Petrie enjoyed hunting; he had greyhounds, a goshawk, a sparrowhawk and employed a falconer. Wild fowl and fish were taken from the ponds and, in 1555, the sum of 22d was paid to men fishing the river in Waltham Forest for 'four pikes, a great carp and a dish of roaches' (Emmison 1961, 139, 224). The inclusion of 'dish' implies they were for the table, not his ponds, and it is interesting to note the carp came from a river not a pond. In the 1496 edition of the *Boke of St Albans*, the author of the *Treatyse* claims not to know them well; they were still largely a pond fish in the late fifteenth century, and became river fish through pond escapes. Leonard Mascall's *A Booke of Fishing with Hooke and Line* published in 1590, also says little about carp but

plagiarises the *Treatyse* published a century earlier. By 1633 Markham refers to carp as river fish and pond dwellers, so by then they were established in some rivers.

A little later the expense accounts of food purchased for the Privy Council of the Star Chamber for James I for part of 1612 illuminate the contribution of freshwater fish offered to high ranking officials in session on a fish day. Three great pike were costed at 17s; two small pike, 8s; carp (no quantity), 18s; eight tench, 16s; six bream, 14s; roach, 14s; perch, 7s; four trout, 12s; eight barbel, 14s; and chub, 4s. There were also a variety of stored and fresh marine fish of which the most costly were two turbot at 18s; migratory fish included a firkin of sturgeon, 38s, and one and a half fresh salmon at 38s. Some comparative costs for meat and fowl were one and a half lambs, 15s; beef 2s 6d per stone (6.3 kg); 42 chickens, 42s; and 18 rabbits, 16s (Drummond and Wilbraham 1994, 110). It is noted that around £17 was spent on fish or meat, more than three times the amount of the next most costly item of food or drink – bread and flour. Small freshwater fish were recommended as easily digestable, 'little fishes of the river', whereas salt fish and salt salmon were more suitable for country people and labourers, being of a strong constitution according to health advice written in 1655 (*ibid*., 122). Small size seems to have been equated with immaturity and more digestible flesh as young birds and rabbits are cited for their delicacy.

Fortunately for researchers into food fashions diarists often record what they ate. In the mid-seventeenth century the diaries of Samuel Pepys describe meals eaten by a man who rose from relatively humble beginnings to high rank in naval administration. His diaries show a man of fashion, drinking coffee, chocolate, tea and eating turkey (the latter was introduced 1524–6), interested in food and the latest science books. However, he also remained attached to some medieval traditions, serving swan, ling (as in salt fish), braun, neats (ox) tongues and venison pasties. Beef, that icon of Englishness, was much in evidence. Occasional mention of fish includes a 'dish of fresh fish', 'bloat' herring, 'fin of ling', sturgeon (pickled) and 'jowle' (head and shoulders) of salmon. Carp was served at home as part of a meal for guests. On 26 March 2, 1662, he served 'a pretty dinner for guests' (four), with a first course of: 'a brace of stewed carp, six roast chickens and a jowle of salmon' (Latham 1981, 187). On 4 April 1663 another 'at home' dinner for 11 people comprised fricassee of rabbit and chicken, leg of mutton, three carps in a dish, side of lamb, roasted pigeons, four lobsters, lamprey pie 'a most rare pie' and a dish of anchovies (*ibid*., 266). They certainly knew how to eat. A brace of carp, with a 'pole' of ling (salted/dried) and a 'pottle' of wine were part of a bet on the selection date for a naval commissioner wagered in 3 June 1667 (*ibid*., 782). Pepys wanted his table to reflect him well, he is critical of meals, both at home and away, that he considers poor. His inclusion of carp shows they were still considered a prestige dish and the only recorded obligate freshwater species he served.

A contemporary diarist, John Evelyn (who counted Pepys as a friend for 40 years), in his entries for the 1670s–1680s remarks on his visits to the great houses of the day, their fishponds and fish he ate there. On 10 September 1677, at Lord Viscount

Hereford's house near Ipswich, Suffok, he notes 'stews (store ponds) for fish succeeded each other and feed one another'. On 22 October 1685 he records a visit to Lady Clarendon's house at Swallowfield, Bedfordshire, writing,

> but above all the canal and fishponds, the one fed into the other with a white, the other a black, running water fed by a quick and swift river so well and plentifully stored with fish, that for pike, carp, bream and tench I never saw anything approaching it. We had at every meal carp and pike of a size fit for the table of a prince and what added to the delight was, to see the hundreds taken by the drag, out of which, with the cook standing by, we pointed out what we had most mind to, and had carp that would have been worth in London 20 shillings a piece.

Here we see the selection of large freshwater fish by the guests (the rest returned to ensure a later 'grown on' crop) as part of the entertainment and elaborate pond systems symbolic of both elite land ownership and on the table (Bray 1901, 114, 239).

Archaeology – the fish bones

Despite the increase in other forms of evidence for freshwater fish in ponds and on the table, obligate freshwater fish remain incidental in archaeological deposits in terms of bone numbers. Sea fisheries continued to expand, modernise and dominate the fish market. Freshwaters still supplied fish for the table, especially in areas like the Fens in the east of England, and meres in Somerset, although North comments, in the early eighteenth century, that pike were less common since the Fens were drained (North 1794, 58). They had already been reduced and diverted as part of water management, but they were significantly affected in the seventeenth and eighteenth centuries in order to produce more agricultural land. The Fens in particular were subjected to a major drainage operation initiated by Dutch engineer Vermuylen on behalf of a group of a consortium of wealthy landowners known as 'Gentlemen Adventurers' from 1630, using wind powered mills, and later, more effectively, steam powered. There were objections, which proved ineffective and, as feared, the fish carrying capacity was significantly reduced, though they remained rich fisheries.

The fish bones recovered from this period still include comparatively high numbers of eel with a few from other migratory species such as shad, salmon, smelt and occasionally sturgeon. The numbers of obligate freshwater species are low. Some examples of fish assemblages from archaeological sites of the period studied by the author illustrating the low numbers of freshwater fish are described below. They cover a range of sites covering post- Dissolution monastic buildings, a prison, urban tenements and military defences.

St John's Priory Jerusalem in Clerkenwell, London, was closed in the Dissolution (1538). Fish were found in excavations in the outer precinct and of a date likely to have associated with Berkeley House, the eighteenth century tenements, in the former home of the Prior of the Order in England, Sir Thomas Docwra (1501–1527). Fish bones were found in samples from cesspit and rubbish fills and, except for two

migratory species – eel (15% of all fish) and a single shad bone – all the fish were marine (Locker 1996d).

At St Mary's Clerkenwell, a nunnery close to and founded about the same time at St John's, fish bones were recovered from levels representing both the monastic occupation and later post-Dissolution use. Monastic buildings, including the parish church, survived the Dissolution, with wealthy mansions occupying the area before it became downgraded for more industrial use. The fish bones were predominantly marine, plus eel and few examples of freshwater species both pre- or post-Dissolution. From the deposits dated 1540–1640, nearly half the fish were eel and herring. Freshwater fish were only identified from four cyprinid bones, including roach (Locker 1996e).

The Tudor deposits from the Fleet Prison, London produced 1559 identified bones from three samples. Among the assemblage were a few freshwater species: pike and cyprinid (including roach and dace), totalling less than 4% of all the identified fish. A sturgeon pectoral spine and eel (9%) comprised the migratory element, the rest were marine fish: gadids, herring and flatfishes. Five later samples, dated 1600–1666, included pike and cyprinid as obligate freshwater species (totalling 2%), with fisheries for migratory fish; smelt (8%), two salmon bones and eel (14%) (Locker 1994).

There is no evidence to suggest these London sites reflect a decline in obligate freshwater fish as a result of changes from religious to secular use. Their bones were never common, only present in small numbers in all phases. The bone assemblages show marine and estuarine fisheries are far more prolific; these fish were easier to catch in numbers and in greater demand. The seasonal fishery for smelt was a traditional catch of the Thames. These tiny, migratory fish were much sought after and, when fresh smell, of cucumber. 'Whitebait', young herring and sprat, were also a Thames delicacy from the tidal reaches and evidence for both has been found in small numbers in archaeological bone samples. Eel and salmon could also be caught in many stretches of the river down to the estuary. The London markets were well supplied with migratory and marine fish. The freshwaters of the Thames upstream were a ready source of freshwater fish, but their contribution in terms of volume, is minor.

The late sixteenth–eighteenth century fish assemblage from Castle Mall, Norwich, is largely associated with tenement occupational debris (Locker 2009b, 134). The 474 fish bones identified to species level from sieved samples were largely herring and cod and large gadids. There is little evidence for river exploitation apart from cyprinids (1%) and eel (9%). Goods were brought up to Norwich from the fishing port of Great Yarmouth via the River Yare, which suffered from silting, but at 22 miles (35 km) overland, marine supplies could meet the city's needs.

As a contrast in function, Camber Castle, Rye, East Sussex, was an artillery fort and part of Henry VIII's coastal defence network. Close to the coast, the bone assemblage is largely marine, mostly gadids and flatfishes (Locker 2001, 306). Sieving inconsistencies cast some doubt on the true absence of small, normally common, species such as herring and eel, which are few here. There is some surviving fishing equipment; the

remains of an iron eel spear and 16 large fishhooks, made from wire, with barbed ends and one, unusually for this date, with an 'eye' for tying on a line. Their size suggests they were most likely for sea fishing (*ibid*., 275). Hooks were initially blind; the line was tied on around the top of the shank. Eyed hooks were more expensive (Herd 2003, 234) and, even among wealthier anglers, not common until the late nineteenth–early twentieth century. Other 'hunting' equipment comprised a gin trap and part of a socketed arrowhead for hunting birds and small bells, which may have been used on falcons. The fish assemblage is largely from the occupation of the castle dated 1544–1647, as are the eel spear and some fishhooks. Fish bones and fishhooks were also found in abandonment levels, dated 1637+, when the sea retreated and the Camber's harbour silted up. Of interest is a carp pharyngeal from a fish of approximately 40 cm total length, found in an abandonment level, and three perch skull fragments, two from occupation and one from abandonment levels (Locker 2001, 330). The carp is not particularly early in date, but there are few English bone finds and this example adds to the data, together with Nonsuch Palace, described below. A mature fish, it may have come from a managed pond, although none is known at Camber with its coastal location. Other finds from the site include fine table ware and some high status birds such as peafowl and turkey, the latter only introduced in the early sixteenth century, so still a rarity (*ibid*., 310). Together with the usual domestic bone assemblage different levels of provisioning are indicated, depending on status, and the carp may be part of a meal for the high table.

Ponds in the garden and the estate: design feature, food store and sport

Ponds had long been a desirable design feature in gardens beyond their use as a fish store or stock watering point and were subject to changes in fashion. When sited near the house, pond shape became more geometric, a trend previewed in some medieval gardens. In the old medieval holding ponds, where fish ready for the table were kept close to the house, they had some ornamental value and this became increasingly important as part of garden design (Currie 1990). Up to the Restoration of the monarchy in 1660 there was greater variety and use of ponds than in the later seventeenth and early eighteenth centuries. Following the return of Charles II continental influences resulted in a much more rigid design. Water became increasingly a moving element in the formal Renaissance garden with cascades and fountains. Features of the later seventeenth century were elaborate, spectacular water features and long canal-shaped waters. It is thought that the expense of maintenance was one reason for their demise, leading to the less formalised 'naturalistic' garden movement that began in the early eighteenth century. However in this setting, the fish, though still a live food store, were still secondary to the look of water within the garden landscape.

The dominance of form over function did not apply to the same degree to ponds farther out on estates, where more natural forms prevailed, but were still an important part of the overall effect. A natural fluid shape defined 4 acres (1.6 ha) of ponds in

Sir Francis Bacon's water gardens at Gorhambury, Hertfordshire (the site of a Roman villa discussed earlier) started in 1608. Occupying a valley, there were seven islands, one with a banqueting house. The waters could be viewed from a balustrade on the roof of a three-storey building specifically built to take in the vista.

Freshwater fish continued to be used as an integral part of display on the table, as an expression of wealth, being from a private live food store and part of the waterscape in great estates. After the Dissolution of the monasteries in the 1530s many monastic ponds, as part of dispossessed estates, were taken over by secular owners, either bought from or gifted by the crown and continued to supply fish. Andrew Boorde, writing in 1542, recommended a pool or two in the garden kept clean and clear as well as a park for deer and conies (rabbits) (Boorde 1870, 239). This shows continuity from the earlier medieval tradition, though Boorde preferred the taste of fish from running waters, being 'cleaner'. Carp is tolerant of low oxygenated, still waters, so ideal for ponds, but has a habit of sifting and ingesting mud from the pond bottom. It is said to taste better from running water, or kept alive in wrapped in wet moss and fed bread and milk for a few days to clear any 'muddy' taste.

The last palace started by Henry VIII (he did not live to finish it) was called Nonsuch, meaning beyond compare, near Ewell, Surrey and was drawn by Hoefnagel in the late 1500s (Pl. 7). Built to rival the French king, Francis I's, palace at Fontainebleau and using some of the same craftsmen, it was to showcase the best. On the chosen site, the existing manor of Cuddington, its church, small village and farmhouses proved no obstacle to the king's desire and were demolished. Nonsuch was to be small but exquisite, a private palace for his entertainment: a lavish hunting lodge. A later survey in 1650 of the Great Park at Nonsuch, which covered 1000 acres (405 ha), recorded 300 fallow deer (a species well suited to emparkment), eight red deer and 'severall fishponds very well imbanked, ordered and fitted for preservation of fish and foule and if stored may bee much improved' (Dent 1988, 292–3). The origin of some of these ponds may have dated back to the earlier manor holding. The survey of the Little Park, some 671 acres (271 ha), included 180 fallow deer, but no fishponds were recorded. Bones of carp, chub, roach, perch and pike have been identified from palace occupation deposits dated 1538 through to demolition deposits of the 1680s, recovered from excavations in the 1950s (Locker 2005). These could have come from the fishponds of the Great Park. Small bones from other species such as herring and eel may have been lost as, although the excavation was progressive in practising sieving at that time, small bones are likely to have passed through the coarse mesh size employed.

Many of the Tudor Palaces had fishponds and there is a hint that Henry VIII practised angling in later life, suggested by an order to clean the ponds and moat at The More in Hertfordshire 'for the kyngs grace to fysche' (Thurley 1993, 193). The property was acquired by Cardinal Wolseley from the Abbey of St Albans and passed to Henry in 1531. The More was surrounded by a moat with two other moats or ponds and the River Colne close by. A 'standing', or platform, was built in the park in 1536 from which the king shot deer. He gave up riding to hounds following a fall and angling may have been part of a change to less arduous pursuits.

The increase in our knowledge about angling at this time coincides with what has been described as the 'taming of hunting' with increasing park enclosures (Griffin 2007); Henry VIII had 200 parks and 50 residences by the time of his death (*ibid.*, 70). Deer hunting in parks was now more common than in royal forests, and a comparatively tame experience; the deer were maintained by gamekeepers and protected by law. The control of the landscape with artificial park enclosures containing ponds and waterways provided a 'virtual' wild experience for hunting and fishing and a readily accessible and managed food store of fish, venison, rabbits and birds for home consumption and gift exchange. The continuing privatisation of land and increase in game laws under the Tudors effectively excluded the participation of many landless people to any legitimate hunting, left to rely on poaching or taking small game and fish in common areas.

Maintaining ponds as a live fish store for the table still remained an important part of estate management. In early angling books such as Mascall (1590), both pond culture and angling feature, with specific angling books appearing later in the period. In 1600 John Taverner, general surveyor of the king's woods south of the River Trent, published *Certain Experiments Concerning Fish and Fruits*. He describes the prime locations for ponds, stocking levels, fish breeding and fish carriage. The best fish were carp, bream, tench and perch. He divides fish into two groups, those with sharp teeth that eat other fish, such as pike and perch, and those with flat grinding teeth that eat corn. These grinding teeth, or pharyngeals, are set as a pair in the upper palate, the upper and lower jaws are toothless in the cyprinid family. Carp is rated the highest for its fast growth and ease of live carriage. Taverner (1600, 22) indicates stocked fishponds as a commercial enterprise were less popular than in the past. He praises their productivity but wished people would spend their money buying freshwater fish for the fish days ordered by law. This suggests demand had dropped, though ignoring fish days was punishable by a fine. Taverner comments that those who should spend on such fish 'would now rather spend their money in rabbits, capons and the like. I am persuaded that fish used as forsaid and dressed while newly taken are very wholesome for mans body and more delicate than most kinds of fishes'. Taverner seems to have been in the minority as marine fish had, for some time, supplied most of the market.

However ponds and fish maintenance continued to be a subject on which practitioners and enthusiasts liked to impart their knowledge. Another treatise on pond culture appeared by the Hon. Roger North (1651–1754), the sixth son of the Earl of Dudley. A lawyer by profession he was a prolific author on a variety of subjects including estate management, honed from experience on his Suffolk estates. In 1714 (see North 1794) he published *An Essay on the Breeding of Fish and Construction of Ponds* and borrowed much from Taverner. North repeats Mascall's mantra that Leonard Marchal/Mascoll of Plumstead Sussex brought the carp to England in 1514. The infamous and incorrect couplet *Turkies, carp, hops pickerel and beer, came to England in one year* has been disproved, but the frequently remarked on rarity of pike

(pickerel) perpetuated the false premise that it was an introduced species. It seems surprising that North would not know the *Treatyse* in the *Boke of St Albans* of 1496, which specifically mentions carp. He was probably unaware of other documentary evidence, which currently places their introduction in ponds in the fifteenth century, with some earlier culinary dates. Pike is also included in the *Treatyse* dated earlier than the spurious introduction date of 1514, and a native species.

Based on 20 years of experience of 'fish and waters', North gives advice on stocking and building ponds, supplying fish for the house, gifting to friends and selling a surplus (apparently easily within 40 miles/64 km of the London markets). North also remarks on fish for pleasure, in particular those stocked in moats, which should surround the house, outbuildings and orchards 'an ornament and a feat beyond imagination'. Moats could be fished for sport 'for angling and the sporting part of net fishing are better than the others (ponds) because they are nearer and fished with smaller nets'. Family entertainment was provided, 'everyone who lives on estate must entertain his family'. He noted young people love angling, a boat and fishing with nets, which was also a leisure activity on the great estates of the Georgian period. North thought this better entertainment than parks, bowling greens and billiard tables. In this context angling is seen as a light distraction not a serious pastime and skill.

The Wharton family held a manor in Buckinghamshire from 1643 to 1723. Lord Wharton's journal for 1686 describes the drawing and stocking of ponds, mostly in October of that year. 'Good big carps' were caught; in one pond he left 103 carps about a 'foot long' (30 cm). On some occasions both large and 'lesser' carps were stocked, the only other fish mentioned that year are tench. In May 1700 from the 'Lodge pond' 50 pike were removed, as well as six carp, six eels and 'a great quantity of perch' (Croft and Pike 1988, 264). Carp were evidently still important fish for the table.

Other books also included pond management as a part of husbandry, for example Gervase Markham in *The English Husbandman* of 1613. The pond has developed from a fish store in medieval times into a combination of practical purpose and ornament. A plan from Markham shows a series of moats and island with planted walkways (Aston 1988, 199). The fish store was contained within a water garden.

Exotic introductions – goldfish

Goldfish (*Carassius auratus*) were initially food fish in China, they and common carp are 'domesticated' fish, others merely captive, though manipulated by man (Balon 2004). Goldfish are closely related to the crucian carp (*Carassius carassius)* from which they may have been bred, supported by some recent work analysing mitochondrial genes (Wang *et al.* 2013), although they have developed some anatomical differences from crucian carp. The gibel carp (*Carassius gibelio*) is closely related and also proposed as a goldfish ancestor; both goldfish and gibel carp can hybridise with crucian carp. Originally silver grey the origin of goldfish has been linked to the introduction of Buddism to China before AD 200, where followers of a vegetarian diet started a

practice of donating fish formerly kept for food to 'ponds of mercy'. From these stocks, breeding for colour started in the early Sung dynasty (AD 968–965) or possibly as early as the T'ang Dynasty (AD 618–906). Colour and exaggerated body features, starting with longer tails, became established forms by the late sixteenth century. By the eighteenth century the fantail and eggfish types were established (Chen 1954; Li 2006). A late eighteenth century manuscript using illustrations sent to the French court from 'Pekin' (Beijing) and redrawn by a court engraver, shows a variety of forms. De Savigny (1780) divides them into seven types based on colour and body shape including fan tails, protruding eyes, shortened round bodies and upturned mouths. These 'fancy' varieties were established in China in the eighteenth century where four main forms were recognised: Crucian (common form, including the comet), Wen (fancy tails), Dragon eye (protruding eyes), and Egg (no dorsal fin and an egg-shaped body). Goldfish were exported to Japan around 1500, where breeding for colour and body shape did not start until the 1700s; the Shubunkin is a Japanese variety. In China they were displayed in ceramic vessels usually decorated with fish inside and out. These are popular today, both original and reproduction, for display but not for fish.

Goldfish were probably first brought to Europe via Portugal. The Portuguese had a trading port at Macao from 1557. The date of their arrival on English shores is unclear, Hall (1859), who calls them a domesticated form of prussian carp, cites dates of 1611, 1691 and 1728 as given by 'different authors' without naming them. A date of 1691 is also suggested for the first goldfish imported to England from Lisbon, brought in large earthenware jars (Jackson 2012, 170). However an earlier record may be found in Pepys who noted in his diary for 28 May 1665 a visit to Lady Penn 'where my wife and I were shown a fine rarity: of fishes kept in a glass of water, that will live so for ever; and finely marked they are, being foreign' (Latham 1986, 492). Although their colour is not described this could be an early reference to goldfish (Wells 1941, 95). Couch (1867, 34) repeats the 1691 date, adding they were not common until 1728, when the Mayor of London, Sir Matthew Dekker, was presented with a 'considerable number', which he gave to friends. By 1750 goldfish were kept in London's Vauxhall Gardens, 12 acres (5 ha) of pleasure gardens, open to the public at a fee.

The 2nd Duke of Richmond (1701–1750) had an exotic menagerie, including wolves, tigers, bears and eagles, on his estate at Goodwood House, Sussex and sent to China for goldfish for his ponds. The duke was a patron of George Edwards, a naturalist, who included a watercolour of the duke's goldfish entitled *The Goldfish from China* in part IV of his *Natural History of Birds* published in 1751 (Pl. 8). Four fish are illustrated, of mixed colours and one has a fantail. This demonstrates there were both coloured and 'fancy' varieties in England since their introduction at least half a century earlier. Edwards writes the fish given to Sir Matthew Dekker in 1728 (see above) were from 'a large number' brought to England in the vessel the *Houghton Indiaman*, part of the East India Company. He also remarks that they had been bred in numbers on the island of St Helena (presumably a suitable stopping point at a British holding on the long journey back from China) and are brought by 'all our *India* ships

that touch there' (Edwards 1751, 209). It is recorded that Napoleon, in his exile on St Helena, kept some goldfish in his garden in the early nineteenth century. They were to increase in popularity in Victorian times in England when goldfish in glass bowls became a popular subject in art, but most show the standard body shape and a single gold colour, though Couch (1867, 35) confirms there were a number of varieties with different fin shapes and split tails.

Despite Pepys' claim goldfish could live forever, the initial ignorance of their care meant that many goldfish would not have survived long in a small container with no food. As with many imported species, goldfish soon escaped captivity and the naturalist Gilbert White, in a letter dated 1786, wrote that gold and silver fishes native to China and Japan (the latter erroneously) had adapted to the English climate so well they were breeding in ponds (Balon 1995, 8) and again, in 1859, they are described as 'breeding freely in English ponds' (Hall 1859, 268). Feral fish are found in rivers and ponds today, especially in south-east England. Tolerance of a wide temperature range (0–40°) has contributed to their success, as has their ability to hybridise with crucian carp, thought to have been introduced around the same time as common carp (Jefferies *et al.* 2017). Carp were now well established and starting to be recognised as an angler's fish, though their reputation as wily and adept at avoiding the hook was not to make them popular for some time.

Angling literature

Some 30 major angling titles were published in the seventeenth and eighteenth centuries (Parker 1930, 33). An exhaustive catalogue of angling and fish related publications up until the late nineteenth century (Westwood and Satchell, 1882) reveals a rich seam of literature, often the amalgamation of earlier publications, with blatant plagiarism noted by the compilers. Some were purely angling books or pamphlets, while works on 'Gentlemen's' recreation now included angling, unlike earlier hunting books. The new emphasis on gentlemen rather than warriors may have influenced the inclusion of angling with hawking and hunting as refinement in elite sport. Angling had long been considered sufficiently contemplative for clergy, unlike other forms of hunting, and was becoming a desirable accomplishment for the upper and aspiring classes. They were the target market for angling books, whether landed gentry or 'new money', consolidating their image. It was in the nineteenth century that books and magazines were to become priced to meet the sporting appetite of the rising numbers of 'working' anglers, catering specifically for coarse fishing.

The literary form of angling was not always just a practical manual. It was the subject of poetry in John Dennys' *The Secrets of Angling* and William Browne's *Britannia's Pastorals*, both dated 1613. The virtues of angling were made clear in Markham's *The Pleasures of Princes* (1615) where it is described as the sport and recreation of God's saints and holy fathers living and dead, bringing no covetousness, deceit or anger (Vale, 1977, 54); a rather utopian view of what was to become a competitive sport.

The second 'watershed' moment (after the *Treatyse*) in angling literature came in 1653 with Isaak Walton's *The Compleat Angler*. This was written in the form of a dialogue between 'Piscator' (an experienced angler and Walton himself) and 'Viator' as pupil, who joins him on an angling journey. The most reprinted of all angling books and inspiration of many Waltonian brotherhoods, it combines angling lore with natural history and philosophy, though Walton too 'borrowed' extensively from earlier works. The success of the book led to the expanded fifth edition in 1676, with a new section devoted to fly fishing added by a younger friend, Charles Cotton.

Walton himself was more of a bait, or coarse, fisherman. He was a self-made 'gentleman', the son of a tradesman in Stafford he rose through a London apprenticeship and judicious marriages to retire from business aged 50. Remaining in London until after the death of his second wife in 1662 he went to live as a guest of his close friend the Bishop of Winchester, where Walton's son-in-law was a prebendary. Although a royalist and using *The Compleat Angler* in part as a commentary on puritanism (Franklin 2001, 61), Walton managed to navigate his way through the Interregnum to the Restoration and was a staunch churchman, with friends in high places. One of his angling companions was the provost of Eton College, Sir Henry Wotton. Walton was a biographer, a poet and, though derivative and arguably no better than any other contemporary work on angling, his remains the best known and loved work. As England's rural idyll shrank it became the anthem for many nineteenth century anglers from a new urban work force (Lowerson 1983).

In 1662, Robert Venables published *The Experienced Angler: or Angling Improved*. Herd (2003, 79) considers this, together with both Charles Cotton's contribution in Walton in 1676 and Thomas Barker's *The Art of Angling* (1651), to be a foundation work on fly-fishing and it also includes bait fishing. Venables was born in 1612, the son of a Cheshire landowner who could trace his ancestry and land holdings back to Domesday. As a Colonel for the Parliamentarians in the Civil War he saw service in Ireland where he spent time fishing, pursuing in his own words 'that recreation which composeth the soul to that calmness and serenity, which gives a man the fullest possession and fruition of himself and all his enjoyments'. A biographical sketch in the preface of the 1969 facsimile edition, describes Venables as a man lacking modesty, arrogant and self-important. If true, he evidently considered angling of all types a suitable pastime for a man of his position.

The rise of booksellers in London in the seventeenth century reflects the increase in book ownership. By 1705 John Dunton, a London bookseller, estimated there were 150 in London and 300 spread though country towns, the latter also dealt in stationary but in London booksellers needed no other support. These were originally centred around St Paul's and even in the Churchyard itself (Davis 1966, 172), but from mid-century, after the Great Fire in which many lost their stock, they dispersed. Different areas came to specialise in particular topics and bookstalls also became more common. Until the mid-1700s books were often unbound, in loose sheets, the buyer paying for the binding. Booksellers acted as publishers, employing the printers and commissioning

authors (*ibid.*, 173). Pepys' diary records visits to his bookseller at St Pauls, and later to his 'new' bookseller in Duck Lane near Soho (Latham 1981). Leonard Mascall's *A Booke of Fishing with Hooke and Line* (1590), was 'to be solde by Edwarde White dwelling at the little North doore of Paules at the signe of the Gunne'. Venables' *The Experienced Angler* (1662) was printed for Richard Marriot and to be sold 'at his shop in St Dunstan's churchyard, Fleet Street'. There was always a risk that a book would not sell or cover its costs and some were funded by subscription. For example, 5 guineas (£5 5s) might include a dedication plate to the subscriber with their coat of arms on 101 copies, described as the first class (Davis 1966, 174).

During this period angling books often included 'Gentleman' in the title, typically the 'Gentleman's Recreation' or the 'Genteel Recreation'. By the mid-eighteenth century titles tend to be more egalitarian, though introductions still imply this was a cultured occupation, even though angling was enjoyed across society, even if less visible at the 'plebian' level. Dedications were common and could be obsequious. Walton's was to 'The Right Worshipful John Offley, of Madely Manor in the County of Stafford' in 1653, noting him as a 'Master' in fish and fishing. Thomas Barker's dedication in *Barker's Delight* in 1657 to Edward, Lord Montague, a General in the Navy and Lord Commissioner of the treasury, seems cloying to the modern reader, though of its time; 'Noble Lord, I do present this my book, as I have named it, Barker's Delight, to your honour. I pray God send you safe home to your lady and sweet babes. Amen, Amen' (Westwood and Satchell 1882, 22).

Venables made no dedication, addressing the reader directly in a prefatory address, lauding angling as a pastime with wide appeal, not exclusive or costly like hunting and hawking and promoting calm and composure. This belies the image of the arrogant, immodest man described in the biographical sketch to the 1969 facsimile edition.

Growth of angling and commerce

The seventeenth century was also a period of great development in shopping, especially in London. At first there were no specific angling shops and haberdashers kept rods amongst other goods. Specific suppliers appear in the mid-seventeenth century. Anglers from the emerging middle class merchants and traders were among the customer base that supported the growing number of businesses. There were a number of suppliers based in the City, initially near St Pauls and Holborn, supplying the aristocracy and gentry. Suppliers were to expand into other areas of London and beyond to reach a wider market with more standard and cheaper tackle, as the angling boom took hold. Turner (2009) has made a fascinating study of their history, showing the changes in partnerships, addresses and stock through an examination of their trade cards.

An early success was the hook-making business of Charles Kirby in Harp Alley, Shoe Lane, near Holborn, set up in the 1650s (Herd 2003, 86). The quality of Kirby's hooks ensured they dominated the market in the late seventeenth and early eighteenth

century (*ibid.*, 86). Angler's essentials were much more than a rod, line and hook and are summarised by Walton for the 'viator' in verse (spelling modernised). At this time winches or reels were not a standard part of the kit.

> My rod and my line, my float and my lead,
> My hook, and my plummet, my whetstone and knife,
> My basket, my baits, both living and dead,
> My net, and my meat, for that is the chief;
> Then I must have thread and hairs great and small,
> With mine angling pursue, and so you have all.

Walton goes on to recommend established suppliers of the mid-seventeenth century, 'Charles Brandons near the Swan in Golding Lane' or 'Mr Fletchers by the west end of St Pauls, as honest men to furnish the angler' (Walton 1985, 115)

The frontispiece illustration in Venables' book (Pl. 9) shows jointed rods, with fixed lines, a float, a weight and a barbed hook. Fly fishing is referenced by two flies on hooks and bait fishing by caterpillars. There is a simple reel at the top on a shelf, a float, a round storage box, a bag and a bait horn. At the base is a woven basket for all the anglers' accessories, recommended to be as light as possible, and another powder or bait horn.

In the seventeenth century rods were still all purpose, for both fly and bait fishing and very long compared to today. Herd (2003, 79) describes 15–18 feet (4.6–5.5 m) as normal, with the line fixed to the tip. With tackle dealers mostly in London and beyond the pocket of many anglers, many rods were home made and angling books advised on the best materials for rods and other equipment. Whalebone was a new material used for rod tips, lighter, more flexible and stronger than wood. Reels were in their infancy, with one early representation being a simple diagram in a book by Thomas Barker in 1651, while Venables has a simple wooden reel shown in his frontispiece in 1662. The first 'multipliers', where a geared mechanism wound more than one revolution's length of line with a single turn of the handle, retrieving the line more quickly, appeared later in the eighteenth century

One entry in Pepys referring to angling line is intriguing. On 18 March 1665, in conversation with 'Mr Caesar' (in reality William Smegergill, composer and lutenist) who was teaching Pepys' 'boy' (presumably a servant as he had no children), Caesar spoke 'of a pretty experiment of his of Angling'. He had experimented with gutskin (often referred to as cat gut but probably sheep or goat) 'varnished over'. This apparently kept it from swelling and better than any hair (horse hair being the main material used for lines at this time) for strength and smallness, 'the secret I like mightily' wrote Pepys (Latham 1981, 742). There is no evidence that Pepys was an angler, but his interest is evident and the lutenist would have been familiar with gut for instrument strings. Venables (1969, 5) also writes of lute and viol strings 'the lowest part of the smallest which I have proved to be very strong, but quickly rot in the water'. He also writes of well made hair lines, and prefers not to mix them with

silk. The quality of silkworm gut was thought to be best from Spain, where the stages of preparation involved a challenging practice where women drew the gut through their teeth as part of the cleaning process (Herd 2003, 187). The use of silk gut lines did not become mainstream until the mid-nineteenth century. With regard to bait, artificial flies were illustrated in the *Treatyse* and were clearly not new. Coarse bait continued to be balls of bread and fat cast upon the water. Pike and perch were often caught using live bait, which included a variety of unfortunate victims: worms, frogs, minnows and grasshoppers to name but a few. The first artificial lure recorded is Walton's silk minnow, though others must have been made no evidence remains. The *Anglers Magazine* in 1726, describes minnows made of tin and painted. Lures of many different materials and forms, at their best quite beautiful and now collectors items, became a major part in angling commerce in the nineteenth century, when there was a positive epidemic of patents registered for reels, multipliers, spinners and all sort of other angling equipment. By the later seventeenth and early eighteenth centuries angling accessories were already recognised as a lucrative market by suppliers, initially catering for wealthy clients. However a range of more moderately priced goods were soon aimed at less affluent sectors and, with astute marketing, took off after the middle of the eighteenth century.

Protection of private waters continued to be the subject of legislation which, in turn, safeguarded the elite side of the angling world and helped ensure a strong market for top quality fishing tackle which, at this time, was still as much for bait as for fly. In 1539 an Act was introduced making the theft of fish from private ponds a crime (Moore and Moore 1903, 177). Fish spawn, fry and young fish had long been recognised as a vulnerable resource. In 1558 an act included the prohibition of taking pike under ten inches (25 cm) and barbel under 12 inches (30 cm). In 1562 legislation prohibited the destruction of dams and stealing from stews among other fish related crimes, all punishable by a 3 month jail sentence and payment of triple damages (*ibid.*, 178). Successive legislation covered marine fisheries and for freshwaters many new laws protected salmon and ordered waterways kept clear for their migration. The official criminalisation and punitive measures show that there was a real concern that waterways and private waters were both being damaged and targeted for criminal activity.

Heraldry and art

Freshwater fish continued to be part of heraldic imagery. The marriages of the Lucy family resulted in the incorporation of their emblem, the pike, into other family arms. Moule (1842, 53) illustrates eight 'marshallings' of arms into one shield by the Earl of Sussex, Lord Chamberlain to Elizabeth 1, who reigned from 1558 to 1603. These devices, incorporating eight families are ranged in two horizontal rows of four and include three pike *haurient* (vertical) in *argent* (silver white) at the beginning of the lower row, symbolising a marriage with the Lucy's.

The tench was used in English heraldry as a play on the name and used by Sir Fisher Tench, made baronet in 1715; both tench and fisher featured on his coat of arms (*ibid.*, 88). The bream was the device of the Breame family and also the Obreen's (*ibid.*, 90). Despite the increasing interest in carp it still does not appear on any English coat of arms, only on the continent, for example the Korzbog family emblem (Poland), mentioned previously, had three carp horizontal one above the other (Cios 2016, 74).

In art fish are more commonly depicted by continental artists, in still life works, where fish often have a religious meaning, or shown in market settings. In England artists began to show them in sport. The Lincolnshire born artist Francis Barlow (1626–1704) is often described as under-rated and the 'father of British sport painting'. His *Landscape with Birds and Fish* shows a range of freshwater fish on a bank by a lake, and what looks like two gaffs but they have evidently been netted and are not examples of angling. The engraver Wenceslas Hollar used drawings by Barlow in *Several Ways of Hunting, Hawking and Fishing*, described as 'invented by Francis Barlow engraved by Wenceslas Hollar', published in 1671 by John Overton. The 'Angling' scene shows anglers on the bank fishing, for what appears to some type of cyprinid, although the text is inscribed:

> Angling on riverbanks trawling for pike, is noble sport when the fish doth strike. And when your pleasure's over then at night You and your friends doe eate them with delight. (Pl. 10)

In the same way that Walton used the *Compleat Angler* as a social commentary, Barlow is thought to have used his art as a metaphor for a country emerging from the Civil War. The depiction of fish as trophies painted in oils or mounted in glass cases by taxidermists, another form of art, was not to rise in popularity until the nineteenth century.

Conclusions

This period, essentially covering the Tudors to early modern England, reflects the increasing range of surviving documentary data on freshwater fish than earlier periods. The medieval practice of fish store ponds continued and ponds also served as ornamental landscape features. Fish days were still imposed, not on religious grounds but to conserve meat supplies, with one proclamation of 1595 estimating one fish day a week would save 135,000 head of beef in a year in the City of London (Drummond and Wilbrahim 1994, 64) and also support the fishing industry. Marine fishing was also a nursery for sailors for naval recruitment at a time of increasing exploration and overseas expansion.

Angling books were also on the increase demonstrating their place in leisure. However, limitations imposed by price and literacy levels, meant books were still out of the reach of lower sectors of society, though they were no longer the elite preserve they once were, reflected in a growth of subject matter. Angling was an established

gentlemanly pursuit, valued for its contemplative qualities and quiet skill, though the great majority of ordinary practitioners were still silent in the documentary record. 'Leisure' (a term more suited to the changed work practices in the nineteenth century) had moved beyond the practice of warrior skills in hunting to more refined activities, leading to a strong commercial response in the establishment of shops exclusively for fishing tackle.

The use of freshwater fish on the table can, in part, be assessed from the increasing number of recipe and cookery books, which had begun to be more egalitarian, though still reflected a minority readership. The evidence we have tends to be from elite meals where ubiquity does not display exclusivity unless size bestows some novelty value. The archaeological evidence from bones of obligate freshwater fish is limited indicating they were not a staple in fish supplies. There were some regional exceptions indicating a more significant role on the table especially in the rich wetlands and by rivers. Their use as a live fish store was observed in the late seventeenth–early eighteenth centuries by Celia Fiennes who, travelling near Bedford, observed fish 'pike, perch, tench etc' kept live in wooden tanks in gardens at the edge of the River Ouse. These could be refreshed by river water and provided a fresh fish store used by public houses for the table (Morris 1984, 232). However outside of rich wetlands the marine food fishes dominated. Herring, the cod fishes and flatfish are most numerous by number and, especially for the cod fishes, by weight in the archaeological data together with eels caught from river/estuarine habitats. The nation's fish needs are largely sourced from the sea and estuaries. Individual accounts such as Lord Wharton's records of the fish he drew from his ponds could, if taken in isolation, give the impression that these were a widely used resource. However pond fish were largely a specialised, largely private practice, accessible to only a small percentage of the population who left written evidence of their husbandry. Books may be more affordable but pond maintenance manuals are aimed at estate owners, recipe books at the new merchant classes (monied, if not landed) and the gentlemen's craft of angling. The evidence always needs to be evaluated from a variety of sources and bearing these biases in mind. The great estates continued to have ever more elaborate water gardens, filled with fish, for their beauty, the table and sport.

The following decades see a new voice in angling, the rise of landless working class whose passion about the sport and competition and increased literacy levels fuelled the commercial side ever further. Transport innovations and organised clubs wrought social change and separated anglers by style. Freshwater fish are still eaten but marine fisheries supply the nation's needs and, for the gentry, will become increasingly more ornamental than live larder.

Chapter 6

AD 1740s–1860s. The first Industrial Revolution

Introduction

The chronological end break of around 1860 marks the beginning of the 'second' Industrial Revolution when machinery increasingly took over more and more of factory production. Mass production had already begun in the late eighteenth century, crucially with the harnessing of steam power (1775) by James Watt, though steam been experimented with at various times since the first century AD. Other advances such as the 'spinning jenny' (1764), enabling one weaver to use eight spindles of cotton thread at a time, raised production levels. Improvements brought during the 'Agricultural Revolution' increased food production and contributed to a predominantly rural society becoming more urban (50% by 1850), with an industrial base. The strive in agriculture for wealth, efficiency and larger farms had come at a cost, enclosures continued apace depriving many small scale farmers and plot holders of areas traditionally shared. In George III's reign some 3 million acres (1,214,057 ha) were enclosed. This helped fuel the exodus from country to city but, for most of this period, industrial workers remained a minority. Industrialisation was inevitably to have far reaching effects on developments in popular culture defining leisure time, binding the work force to specific working hours to maximise efficiency. This increased the divide between the classes. Formerly the elite in a rural setting had closer ties with their 'workers', to whom they rendered hospitality on the many holidays and feast days. New aspiring middle classes tended to be in towns and cities, the 'working classes', especially non-skilled, became comparatively isolated in cultural terms and associated with violent sports and heavy drinking, on which there was a clampdown by the authorities from the 1830s (Vamplew 1988).

In the mid-eighteenth century increased land enclosure reduced public access to waterways and saw the development of 'natural' landscaped gardens on estates and the great era of canal building. The 'Golden Age of Canals', from 1770 to 1830, revolutionised the transport of goods and coincidentally expanded the horizon of the

urban angler. These often polluted waters linked with natural waterways to transport heavy, bulky commodities, such as coal, by barge into industrial centres, where it would fuel the new power source, steam. The first was the Aire and Calder Canal in 1704, but most were built after 1750. There were over 100 canals, ranging from under a mile (1.6 km) to 286 miles (460 km) long. The Bridgewater canal was among the first, bringing coal to Manchester and was opened in 1761. Over the years nearly half have closed, though some have been reopened, at least in part. Canals became and continue to be the haunt of coarse fishermen, for pike, roach, occasional carp and other cyprinids. Fish caught on the fly; grayling and trout, prefer faster, more oxygenated waters. Canal fishing opened new possibilities for a burgeoning sector of society, the urban, landless workforce employed in the new factories or surviving small workshops of a newly industrialised England.

In the nineteenth century anglers were to become divided into fly and coarse by social class, largely determined by access to different clear running streams and rivers or restricted to slower flowing, often polluted waterways. The lower economic groups tended to favour coarse or bait fishing in waters more easily reached from the growing industrial centres. The faster flowing, clean, well oxygenated waters suitable for fly, or game, fishing for salmon and trout were often in private ownership or too far from the new urban work places. The skill and precision work of engineers, clock makers and jewellers was put to use in the improvement and manufacture of reels and artificial lures and baits. These became more specialised to meet different angling needs in an increasingly competitive market, as demonstrated by the many registered patents.

Angling was seen as a sport less likely to lead to civil disorder and, according to a social survey of sport in 1801 by the antiquary Joseph Strutt, fishing was included with hunting, hawking and fowling as ‘rural exercises practiced by persons of rank’ (Birley 1988, 26), though perhaps he was writing primarily about fly fishing. Angling would be elevating for a social class more traditionally associated with rowdy, unregulated sports, though others have commented that the upper and lower classes were linked by violent sport, drunkenness, sexual indulgence, profaneness and gambling (Vamplew 1988, 7). Popular violent ‘sports’ among the ‘working classes’ included cock or dog fighting, rat killing, pigeon shooting and bare knuckle boxing while angling was seen as civilising. There were some quieter indoor entertainments: including card games, shove-halfpenny and skittles, but beer and betting played a role in all ‘working class’ sports (Mayhew 1985, 22). However, in angling, a strong connection with alcohol was maintained; the official address of most fishing clubs would be the public house, encouraged by the landlord for the additional business.

Industrial growth affected both ends of the social spectrum, from workers to newly wealthy entrepreneurs who had risen from lowly beginnings. The latter had money to spend and wanted houses and estates as good as any of those inherited by the landed classes. They demonstrated their success by investing in land, bricks and mortar as grand as any of the long established families. A peerage proved initially

more elusive, they were not awarded for commercial success until the 1880s (Mennell 1996, 357; Booth 2011, 333). These newly rich would become valued clients of the angling suppliers, who began to cater for every budget and need.

Sources of evidence

Much of the evidence from this period onwards is documentary: books, newspapers, advertising, stocking records, angling club records and regulation regarding fish and waters. Material culture has become very collectable with rods, reels and memorabilia fetching high prices and charting the developments in materials and techniques. The democratisation of literature through lower printing costs and increased literacy levels has left a rich written legacy documenting the impact of fish in food and sport across the social spectrum.

Fish bones from excavations of this date are scarce; the documentary evidence has become their proxy, whereas before the medieval period, fish bones were the most ubiquitous source of information complementing the documentary data. In the medieval and early modern periods both documents and bones play an important role. The lack of fish and other bones from deposits of the later eighteenth and nineteenth centuries may be in part due to changing rubbish disposal methods, with the beginnings of centralised collection. Individual household rubbish deposits are relatively scarce, especially in urban areas. Additionally, funding restraints means excavation tends to be concentrated on earlier periods that are less well documented. Later levels may only be recorded in section with uppermost levels removed by heavy machinery. However, where these have been excavated archaeology has been of value; for example adding physical evidence to building plans and construction methods to evaluate details of change, usage and abandonment that is not always clear in historical documentary records. Industrial and conflict archaeology have proved valuable tools in clarifying aspects of the Industrial Revolution and on battle sites as recent as World War II. Two examples of fish assemblages of later date are given below.

Analysis of fish bones excavated from the Napoleonic fort at Berry Head, Brixham, Devon showed ordinary soldiers were eating largely hake, while officers had more expensive fish such as turbot, sole and John Dory. The metrical data also showed that in the late eighteenth–early nineteenth century the average size of hake caught off the south-west coast was significantly larger than today (Armitage 2012). This is the type of evidence now valued in marine science as evidence of historical changes in catch size through over-fishing.

Domestic debris from a Georgian cesspit dated 1770–1800 (disused by 1820), associated with the occupation of a former abbey gatehouse in West Ham, London included tableware, plant remains, animal and fish bones. Smelt, eel, mackerel and plaice were identified as well as many bones from indeterminate cyprinid species, flatfishes and a gadid. In addition to pottery there were also fragments of Chinese and English porcelain associated with tea drinking, indicating that this household

could afford tea and quality china, giving some indication of social status. However the fish could all be sourced from the Thames and its estuary and none is a high ranking species. Smelt were an important seasonal fishery in the Thames as were fisheries for eels and flatfish, especially flounder from the estuary (Blackmore *et al.* 2013). This small assemblage reflects consumption of locally available, inexpensive fish, though other evidence suggests the family were of some status.

Historical data and fisheries science

The Berry Head fish assemblage described above is an example where fisheries science can draw on archaeological evidence for changes in the sizes of fish catches. Historical data are increasingly used to extend evidence back in time to assess anthropogenic affects on fish stocks pre-dating the collection of statistical records (Poulson 2013). This so called 'dirty data', previously regarded as insufficiently rigorous, is now being used to build a longer temporal narrative to the history of fisheries. For the Adriatic, data from 36 naturalists' books on fishes from 1818–1956, together with landing statistics from 1874–2000, were used to assess changes in abundance between 1800 and 2000 (Fortibuoni *et al.* 2010).

By previously ignoring earlier sources as less scientifically based (essentially pre-nineteenth century), a false baseline had been set. There was an assumption that little significant effect on fish stocks through fishing and other factors had taken place prior to the introduction of data collection. It is now known, through studying a wide range of information, that many fish populations, both freshwater and marine, were affected by human activities well before the period of 'industrial' fishing in the nineteenth century (see Thurstan *et al.* 2013). A study of the historical use of watermills on rivers in both Britain and northern Europe has indicated dramatic effects detrimental to salmon stocks linked to the rise in waterpower as far back as the Saxon period. By the nineteenth century the damage was significant, but there had been a possible 90% decline as early as 1600 (Lenders *et al.* 2016). The use of these diverse sources support the validity of citing contemporary opinions here using angling books, recipes and other sources as a proxy in discussing freshwater fish.

Data conflicts – bones versus documentary

Earlier chapters (particularly 4 and 5), have shown how different forms of evidence give conflicting impressions of the importance of freshwater species as food. In archaeological fish assemblages they are a minor component by bone number compared to eel and marine fish, particularly herring, flatfishes, whiting and, increasingly, as offshore fishing expanded, ie, the larger cod fishes. The wealth of evidence for freshwater fish in documentary data before the eighteenth century largely reflects the survival of meticulous accounting by wealthy households and estates, which often included fishponds, but these were owned by a very small

percentage of the population. Accounts reflect both the smooth running of a staffed establishment and contemporary methods of fishpond culture, but they give an exaggerated impression of the general contribution of freshwater species in the diet. In the medieval and early post-medieval period ponds and water systems were used as an elite symbol within the context of land ownership. Early recipe books were for the wealthy. Comparatively late, into the nineteenth century, angling books were guides for 'gentlemen' who fished both 'game' and 'coarse' fish. At the lower social end of the angling spectrum, even when angling books were produced cheaply, local knowledge was still shared orally. For this group a continuous trend of land enclosure, of 400,000 acres (161,874 ha) in 1740 to 21 million acres (8,498,398 ha) in 1800 (Wickham 2012, 143) was prohibitive. A further 34 Acts passed between 1837 and 1841 covered 41,000 acres (16,592 ha), of which only 22 (9 ha) were set aside for common recreation (Rule 1986, 217), public spaces were increasingly limited. Together with pollution and a growing legal corpus limiting fishing on public waterways to protect fish stocks commercial fishermen and sporting anglers would have been increasingly restricted.

Legal protection of fisheries and waterways, beyond ownership rights, had been implemented since at least the thirteenth century and the volume of legislation put in place over the centuries indicates the continuing seriousness with which illegal fishing was viewed on both public and private waters. A compilation of fisheries law (Moore and Moore 1903, 181, 191) cites severe punishments, such as transportation in 1765 for 'larceny' (theft) of any fish held in private waters. The range of measures protected private landowners, public waterways as well as marine fisheries. Safeguarding remaining salmon stocks was the purpose of much regulation but, both coincidentally and deliberately, included other fish. River pollution and obstruction had been a problem since at least late Saxon times, as proven by the estimated catastrophic decline in salmon described above. The 6000+ water mills recorded in the Domesday survey would have affected fish access in rivers and streams continuously over the centuries. Increased discharge of polluted waste into rivers, from industries such as dye works, sewage and agricultural waste fouled the water and poisoned fish. Apart from salmon it is difficult to assess how much legislation was intended to protect fish for sport or for food, as many freshwater species were increasingly absent from the table.

Freshwater fish on the table

Freshwater fish were still eaten in England, though played an increasingly minor part in fish cookery. In Europe they were valued for longer and remain traditional foods today, especially in eastern Europe. Brillat-Savarin (1825) was born in 1755 in Bugey, Eastern France and was a noted gastronomer. He considered the differences between marine and freshwater fish were a matter of taste, though fish to be generally less nourishing than meat overall. The preference in England had long been for marine fish and developments in commercial sea fishing delivered marine fish in

large numbers with some, like herring, prolific and cheap. The medieval view of fish as less 'heating' than meat and therefore less likely to lead to excesses of lechery and carnal desire was linked with fish for fast days (Buxton 1988). Although fish on Fridays remained a tradition, Britons generally preferred and prefer meat. There is still an ambivalent view of fish apart from the holy trinity of cod, tuna and salmon. The latter, so successfully farmed, is set to be the most commonly consumed fish in Britain. Modern British tastes in fish are conservative and limited and have changed away from herring and eel, both rich and oily, which now serve a comparatively niche market. Fish is still often viewed as less filling and satisfying than meat, more of a health food.

In a guide to living in London John Trusler (1790) gives some idea as to the prices of fish in the late eighteenth century. At this time Billingsgate Fish Market was open air, lined with booths. He notes their prices were a third cheaper than those of fishmongers whose prices varied depending on their location, while street sellers were the cheapest. He writes much about marine fish but also obligate freshwater fish and others caught in freshwater. Thames salmon were always double the price of other salmon since, although they do not taste better 'they are later out of the water', so can be crimped (cut crossways) to give firmness. Prices for freshwater fish include jacks (small pike), carp and perch at 1s per lb (0.4 kg); trout and tench 6d; gudgeon 6d or 9d. As a comparison cod were 1s–1s 3d per lb; barreled cod 6d per lb; dry cod 5s for 28 lb (12.7 kg); whiting 2s per dozen; haddock 6d per lb. The prices compared well against fresh marine fish. Freshwater fish were sold live and kept by fishmongers in cisterns, which would have allowed for the crimping of live flesh (see below). Some freshwater fish were available most of the year – carp, eels and tench, while pike were best in July, August and October. Thomas Best (1787) promoting the use of ponds wrote carp 'can fetch 6d, 9d or 1s'.

Later figures for fish coming in to Billingsgate Market in London around 1850 give some idea of the quantity and most popular marine fish eaten at that time. Obligate freshwater species are not included and eels were mostly imported, mainly from Holland, as had been the case for some time. These statistics were collected by Mayhew from 'the most eminent of the Billingsgate salesmen' and cited in his study *London Labour and the London Poor* (1985). By this time the majority of fish was eaten fresh and the softer, lighter cures such as bloaters (lightly cured herring) were more popular than the longer lasting dried, salted and hard smoked versions. By weight, 71% of fresh fish were herring followed by plaice (8%), sole (7%) and mackerel (6%), all the others were under 2% each including salmon and salmon trout (0.8%), while eel were only 0.3%, mostly coming from Holland. This presents a stark contrast to their abundance in archaeological bone assemblages from earlier periods when eels were so numerous they were used as medieval rent values.

The poor preferred meat but would eat fish when it was cheap. Chaloner (1966, 112) quotes a clerk of Billingsgate in 1833: 'The lower class of people (in London) entertain the notion that fish is not substantial food enough for them, and they

prefer meat; but at times, when mackerel and herrings become very cheap they eat a great deal of them'.

A Londoner and committed diarist of the early nineteenth century was William Feltuss who, despite a pension from the East India Company and owning several properties for rental, also held down jobs in various warehouses. This employment may have been necessitated by his tenants' failure to pay their rent. He kept very detailed records of his expenditure and is a rare record of the 'upper working class'. Of fish he ate mackerel, cod, herring, skate, salmon and eel, the latter he liked to make into a curry, a legacy of his East India employment (Brears 2018). No freshwater fish are listed.

Herring and mackerel were very popular with poor Londoners; Mayhew's figures show three-quarters of herring and two-thirds of mackerel were sold to costermongers. These street traders worked the streets from a barrow, buying cheap fish from Billingsgate, of poor quality or near to decay, to sell on to the poor. Fish almost beyond sale were often sold outside the costermonger's own circuit to avoid later complaints, or by candlelight when it was difficult to see the state of the fish (Mayhew 1985, 11). There seems to be no record of their selling freshwater fish, but there were commercial fishermen on the Thames and other rivers and anglers must have eaten their own catches. Wheeler (1979, 66) suggests that sales were local and therefore not recorded and they caught substantial number of fish legally and illegally. The Thames Angling Preservation Society (founded 1838) authorised by the City of London Corporation brought 84 convictions between 1839 and 1844, imprisoning illegal fishermen and burning 29 illegal nets (*ibid*., 68). Their remit was to protect fish stocks for anglers and, as well as 'policing' fishing, they also restocked fish. We know from some contemporary anglers which fish they preferred to eat. In 1814 Salter remarked carp were 'much prized when stewed in wine' a view not commonly shared by that time. He also rated perch highly, while of other freshwater fish only tench, dace and gudgeon were recommended.

Herd (2011) suggests the term 'coarse', which came to be synonymous with bait fishing, is a 'peculiarly British phenomenon' and first appeared in the early nineteenth century relating to the value of these species as food. Freshwater fish had fallen out of fashion on many British tables by then as indicated by contemporary literature, probably most swiftly in London, which led fashion trends, than in the provinces and the countryside.

Cookery books

Hannah Glasse (facsimile 1995) published *First Catch your Hare. The Art of Cookery Made Plain and Easy* in 1747. The author was a habit-maker to the Princess of Wales, and supplied a wide range of garments, as indicated in her trade card in the 1751 edition. She was no fictitious authoress like Dame Juliana Berners and, despite Dr Johnson's damming (and sexist) remark on her authorship that 'women can spin very well,

but they cannot write a cookery book' (*ibid*., v), it sold very well. The book was born of necessity; illegitimate, though recognised by her father who was educated at Cambridge but seemingly had no profession, her marriage to John Glasse brought no financial stability. He died in 1747, when Hannah had already tried to market a patent medicine *Dr Lower's Tincture*, after which she seems to have started a shop. Her third venture was writing *The Art of Cookery* before starting a garment business and she wrote two later books on confectionary and servants.

In the spirit of plagiarism practised by many angling authors, *The Art of Cookery* 'borrows' from other works, one in particular, *The Whole Duty of a Woman* (anon. 1737). Analysis by Jennifer Stead (in Glass 1995) suggests recipes were taken from the latter, which catered for experienced cooks and were made more 'user friendly' by Glasse, for a less accomplished and aspiring culinary readership (*ibid.* xvii). This approach was not totally successful but she evidently connected with her readership, producing the most prolific cookbook of the later eighteenth century, going to 17 editions between 1747 and 1803. The fish recipes, scattered in different sections, include freshwater species; carp fried, baked, potted and in a pie; fried tench and pike dressed and potted. Other seasonal fish caught in freshwaters are lamprey, salmon, eel and sturgeon. This suggests sturgeon was more readily available, not just a royal fish, as the market for this book was for the home cook. Marine fish are well represented especially cod fishes, both fresh and salted, herring and flatfishes. A total of 202 subscribers are listed, mostly women, both married and unmarried with two prefixed 'Lady' and one 'Honorable', indicating the broad appeal of the book. Hannah Glasse may be the first author on cookery born of financial need rather than a lady producing a genteel guide for other ladies. Sadly none of her enterprises, including this successful book, solved her monetary problems and she died bankrupt in 1770.

Books on domestic management including cooking were in great demand in the nineteenth century, especially for the aspiring middle classes. Perhaps most well known is Mrs Beeton's *Book of Household Management* which first appeared in 48 monthly supplements in the *Englishwoman's Domestic Magazine*, published by her husband. At her request over 2000 readers sent in recipes which, together with other plagiarised recipes, contributed to the first complete volume of 1861, which sold over 60,000 copies, a total many an author today would envy. She includes 33 fish species with recipes, the most popular fish, judging from the number of recipes, are eel and salmon (eight recipes each), sole (nine) and cod (11), two of the three most popular fish today. Most of the fish are marine and migratory species (eel, salmon, shad and smelt), while freshwater fish are rare. Only five have recipes: barbel and gudgeon (one each), carp, pike and tench (two each), a joint tench and eel pie, and perch (three). Beeton considered perch the best of all the freshwater fish. A problem long noted was the muddy taste and smell from fish, such as carp, whose habit was to sift through stagnant pond beds. For this reason river caught fish, were often recommended over pond fish, and soaking in strong salty water after cleaning was supposed to cleanse the flesh (*ibid*., 113). As previously mentioned, in medieval times carp, noted for

churning up the bottom of ponds and rivers looking for food, were kept alive in wet moss and fed bread and milk for some days to cleanse the flesh.

Beeton considered barbel the worst of freshwater fish (*ibid*., 117) while chub were 'not good' (*ibid*., 124). Dace were better and, in February, said to surpass fresh herring (*ibid*., 124). The best roach were from the Thames (*ibid*., 125) and gudgeon are described as having good flesh, easily digested (*ibid*., 133). Interestingly this small, unassuming fish is mentioned regularly from medieval times as good to eat and even some sport in angling. Pike, once a favourite of medieval banquets is now deemed dry (*ibid*., 147) and tench though 'esteemed in England', can be muddy (*ibid*., 163). She gives no prices for freshwater fish as they were 'seldom bought' so cannot be compared against other prices for fish or meat. Salmon, eel and trout appear occasionally as a first course in set menus, but marine fish are most common. There are three examples of perch (*ibid*., 935, 947, 954) and one for pike (*ibid*., 955), the latter served *a la russe*. This is a form of meal service where each course is served up separately replacing the more medieval style, *a la francaise*, where a number of dishes are put on the table together for diners to help themselves.

These changes in types of food and its service reflect the practices of aspiring middle and higher social classes. The dietary health of the poor was beginning to be under scrutiny, with a more scientific approach to data collection through interview by pioneers in the field, including Mayhew in the 1840s. Their findings dispelled any myth about bucolic rural lives, revealing the abject poverty which had led to a rural exodus. In 1801 only a fifth of the population lived in towns, by 1851 town and country dwellers were approximately even by number (Burnett 1969). Cheap pamphlets for the poor instructed them how to improve their diet on low income. Here freshwater fish played a very small part, most of the fish were marine. The renowned chef, Charles Francatelli in *A Plain Cookery Book for the Working Classes* of 1852 only mentions freshwater fish once and as a general term for any freshwater species included in soup (*ibid*., 26), whereas other marine fish are specifically mentioned, including skate, red herring, mackerel and plaice. Alexis Soyer, French and a famous Victorian chef, invented the Soyer stove, improving nutrition for soldiers in the Crimean War. He published *A Shilling Cookery for the People* in 1854 and writes that freshwater fish are 'not esteemed' by many 'though some are excellent quality and much in use on the continent'. He mentions only tench, perch and eel specifically; the emphasis is on marine fish, recognising the British preference. In the workhouses of the eighteenth and nineteenth centuries fish of any description was rarely served and likely to be herring. The delicacy of fish flesh was acknowledged and included as part of a fever diet of 1844, so not very filling for the poor but Unions could request fish if it could be easily and cheaply supplied. However, workhouse kitchens found it difficult to cook fish in large quantities (Higginbotham 2008) but, again, this referred to marine fish, primarily herring and white fish such as cod. Britons generally seem to have turned away from freshwater fish for eating earlier than other European countries, at the same time as coarse angling for sport grew much more rapidly than elsewhere.

Was it all a question of economics and supply? Certainly freshwater fisheries could never meet the volume provided by the fishing fleets and the rapid and early industrialisation in Britain resulted in increasingly more efficient marine fisheries and delivery. It is difficult to compare the price of meat against fish in a meaningful way, particularly freshwater fish, as prices are rare. Best's and Trusler's late eighteenth century data are not contemporary with Beeton who, although she gave recipes for them, states she seldom bought freshwater fish. They were sold in London fishmongers as can been in Jaques-Laurent Agasse's painting *A Fishmongers Shop*, of 1840, of John Young and Sons which, though mostly marine fish, clearly shows a pike and probably a carp (Jackson 2012, 96).

A selection of what you could buy for 1 shilling, comparing meat and marine fish based on Beeton's prices, are as follows; 1 lb (0.4 kg) of rump steak; 4 lb (1.8 kg) of beef cheek; just over 1 lb (0.4 kg) of pork chops or bacon; 2 lb (0.9 kg) of mutton breast; six or 12 eggs, as their price fluctuated. Alternatively 2 lb (0.9 kg) of salt cod; 12 salt herring; 1 lb (0.4 kg) of sprats; 2 lb (0.9 kg) of small eels, or four plaice. A whole chicken was too expensive (2s 6d), as was cod head and shoulders (3–6s each) or 1 lb (0.4 kg) of salmon (1s 3d).

The cheapest fish were salt cod, herring, sprats and small eels. When compared with the price of meat, another factor is the high wastage of fish, which can be 50% plus of weight when headed and filleted. Small fish bones (often herring) are found in cess deposits showing signs of digestion, such as distortion and eroded bone surfaces, suggesting the entire fish was eaten, or at least the vertebrae. The bones of herring are soft and small, as are those of sprat and smelt. The latter a Thames seasonal favourite, though eaten whole, at 2s per dozen was still beyond the reach of many.

Store ponds

The medieval style of fish store ponds as a live food supply was still important in some areas but elsewhere ponds were falling out of favour. In 1747 the Corporation of Leicester, with extensive fishing rights on the River Soar, ordered a stew (store pond) to be made (Chaloner 1966, 94). In 1764 nets were provided for the Mayor to fish Corporation waters. Aikin, describing the region around Manchester in 1795, records 'Many ponds and old marl pits in the neighbourhood are well stored with carp and tench and pike and other freshwater fish are often brought to market' (*ibid*., 95). However, the price of freshwater fish compared to sea fish, based on a consignment of eels and pike sold to a Manchester fishmonger from an outlying estate in 1818–19, suggests they were not a cheap alternative to sea fish, being two to three times the price of cod and haddock (Scola 1992, 129). Locally, the River Irwell was already heavily polluted by effluent from the dye works and, by 1850, fish stocks had virtually disappeared.

Some 30 years after Aikin's remarks, in the 1820s, William Cobbett commented on the decline of fishponds. He remarks on a ride from near Southampton to Kensington

in October 1826: 'you can see the marks of old fish ponds in thousands and thousands of places. I have noted I dare say 500 since I left home. A trifling expense would in most cases restore them. But nowadays all is looked for in a shop' (Cobbett 1967, 192).

Both Cobbett and Thomas Best (writing in 1787 and more closely contemporary with Aitkin), considered fishponds an under-used resource. Best, who was Keeper of his Majesty's drawing room in the Tower of London, wrote that fish would 'furnish the table and raising money your land will be improved'. He calculated that a meadow would raise £2 in cash whereas a pond of 4 acres (1.6 ha) could carry 1000 fed carps from least size up to 14 inches (35 cm) as well as pike, perch, tench and other fry. The value of the carp would be 6d, 9d and perhaps 1s each, totaling £25, or £6.5s per acre. Despite these recommendations freshwater fish consumption continued to decline.

Fish and ponds as ornament

Freshwater fish were increasingly kept for ornamental purposes. In the eighteenth and nineteenth centuries carp stocked in English ponds and lakes would have been close in appearance to the original store fish of the medieval period. Carp were often remarked on as a difficult challenge for the angler, which initially made them unpopular, but this was to reverse in the twentieth century. Perch and pike were also kept, though the latter needed careful management with regard to the size of the pond and of other fish so that the pond did not become a pike larder.

Large water features evolved in tandem with garden fashions. William Kent (1685–1748), influenced by a 'Grand Tour' in Italy, started the 'landscape movement' for which Lancelot 'Capability' Brown (1715–1783) is best known. Brown began as an under-gardener for Kent at Stowe, Buckinghamshire, and went on to design as many as 250 landscapes. He used water on a big scale to create the illusory effects very fashionable among the wealthy from the mid-eighteenth century. Serpentine lakes, undulating grass slopes grazed by cattle and sheep, strategically placed ornamental buildings and dramatic tree planting created an idealised, endless bucolic landscape (www.parksandgardens.org). Water features were an essential part of the attraction. New lakes were created by moving vast amounts of soil by hand, waterproofing with a clay lining or by being adapted and enlarged from earlier pond systems, providing both a fish store and sport for anglers (Jackson 2012, 161). Early in the eighteenth century gardens had been formal, even areas described as 'wilderness' were very controlled. The new open park style was also controlled but that control was disguised. Careful construction gave views of 'natural' endless landscape (no visible fenced limits) from the main house, often built in a Palladian style. These vistas suggested limitless land ownership and became the height of fashion for the 'super rich' of the time. A predominant palette of shades of green and changing light were used to maximum effect.

The 'Brownian' park owes much to the medieval deer park tradition (described as the original large scale landscape design) with lakes evolving from the large chains of

fishponds of both medieval and post-medieval date (Gregory *et al.* 2013, 22). As well as creating water features, typically serpentine lakes, any existing fishponds that did not fit the plan were drained (*ibid*., 17). The lakes were stocked with fish and used for boating and angling. In a study of Georgian gardens from the period 1714–1837 Felus (2006; 2016) explores water features as part of elite entertainment. On large lakes sailing boats, and even replica warships, took to the water for the enjoyment of guests. Lakes provided bucolic views for picnics and the backdrop for firework displays. Accounts in contemporary diaries and journals record men, women and children (including royalty) enjoying angling for 'coarse' fish. Angling is also shown in contemporary paintings and was regarded as a skillful and entertaining typical pursuit for the afternoon. Over the period fishing houses developed from small alcoves in the mid-eighteenth century to elaborately decorated constructions from which you could fish directly, store a boat, have a meal and generally be entertained in great comfort; an evolution from the medieval banqueting houses.

These water features also had a practical aspect, some powered mills and were well stocked with fish, and guests were often invited to view regular nettings. At Sherborne in Dorset in 1766 netting yielded nearly a ton of pike, the heaviest was 28 lb (12.7 kg) with several at 15–16 lb (7 kg), also many fine tench, 40–50 brace (pairs) of 'exceedingly fine carps' and a few large perch. All were put back except the pike (who preyed on other smaller fish), 40 brace of tench and eight brace of carp (*ibid*., 90). The tench and carp kept back may have been to supply other ponds with some for the table. The medieval store pond, still supplying the table and denoting wealth in the later seventeenth century had, by the eighteenth century, evolved into a greater statement of power and wealth. This landscape feature was a plaything, providing vistas and a backdrop for drama and entertainment, equally as prestigious as in the past.

Retrospectively Brown's landscape work has not always been universally admired; Eastwood (1958, 55) commented: 'There they stood, these huge Italianate buildings, in an alien land, in the utterly alien surroundings of grasslands planted with belts and clumps of oak and beech and elm, instead of in their own setting of walk and terrace, parterre and fountain ...'

However 'Capability's' transformation of landscape proved very popular at the time among wealthy landowners competing with each other, which led to many commissions. After his death the style fell out of fashion with the Victorians, the 'wildness' seemed too managed for nineteenth century tastes. However, today he is again much admired, with restoration of gardens to his original plans which can be seen at estates including Stowe and Blenheim, Oxfordshire, contributing to the very managed English landscape.

On a smaller ornamental scale, goldfish were kept in outdoor ponds; in the 1760s in the new gardens at Kew, on the western outskirts of London, a small Chinese temple was built in the middle of an ornamental pool filled with goldfish (Felus 2016, 119). Inside, goldfish were kept in 'drawing room tanks' with minnows and other small fry

and would become tame enough to take food from the hand, distinguishing between acquaintances and strangers (Hall and Hall 1859, 270). They were less happily also kept in glass 'globes' and popular in Victorian homes. They were ornamental but also seen as educational for children and restful for invalids. In the London suburbs and more affluent streets in the city and other towns including Brighton, Sussex, goldfish were hawked door to door in summer. Mayhew interviewed London goldfish sellers as part of his survey of the poor. In July 1851 he writes: 'This is the season when the gold and silver fish-sellers who are altogether a distinct class from the bird sellers of the streets resort to the country, to vend their glass globes, with the glittering fish swimming ceaselessly round and round'.

It is notable that White, Mayhew and Hall all refer to the fish as 'gold' and 'silver', the latter being the original wild colour in China. At that time there were three wholesalers of goldfish in London, two of which supplied the street traders. The fish were mostly bred in Essex ponds where the water temperature was warmed by run off from steam power used in nearby works. Goldfish are common there today, released from aquaria, and possibly for good luck (Copp *et al.* 2005b). In Victorian times these 'native' bred fish were thought to be more robust than those imported from abroad to improve stocks. Large fish were known as 'pond' fish and the smaller as 'globe'. The sellers preferred smaller fish as they were easier to keep when business was slack. Prices varied, large 'silver' fish were the most expensive and could be 5s each. The hawkers usually sold goldfish at around 2s per pair. The glass 'globes' were approximately 12 inches (30 cm) in diameter and the cheapest were 6d at cost price selling on the street at 2s to 2s 6d. Mayhew remarks that both fish and globes were cheaper than a decade earlier as glass tax was lower and there was more competition for sales, with about 70 dealers working in London. It was still commonly believed that goldfish did not need feeding, deriving enough nutrients from the water. This kept the water clean but many died of starvation, keeping the fishsellers in business. Fortunately for the fish, by the end of the nineteenth century this myth was largely dispelled and ant eggs were sold as the recommended food (Mayhew 1861; Matthews 2016). Glass aquariums on ornamental iron stands became very popular during this period and were exhibited at the Great Exhibition in 1851, as was a large marine aquarium.

An angling boom

There were many fishing tackle shops in London in the mid-eighteenth century; far more, observed Manby Smith (1857), than were needed to supply local anglers. Sited in quiet areas and attracting little passing trade, as relying on their reputation, they supplied the whole country and were beginning to supply more specialised tackle including different rods for fly and bait. In the summer season they also sold fishing rights in private ponds and streams, with board and lodging. Manby Smith compares the young angler – fishing on a canal using a penny willow wand as a rod bought from the basket maker and a 5 d roach line – with the 'capitalist' who spends a crown

(5s) or a pound on a bamboo rod 15–20 ft long (4.5–6 m), porcupine quill floats, lines of 'china twist', bait boxes, fish cans and belted baskets and may still catch no fish.

John Fisher Murray (1844) counted 284 anglers in Kensington Gardens and Hyde Park in central London one September day. All society was represented, some in 'full fishing panolopy' as if salmon fishing on the Tweed, baiting the water with bread and malt. It amused him to see the few roach and gudgeon they had caught, being no more successful than the fisherman with a cheap hazel rod. Both Fisher Murray and Manby Smith highlight the differences between the poverty of many urban coarse anglers and those who could afford to patronise angling stores advertised in the *Gazette*. In the case of Kensington Gardens and Hyde Park angling was just for show, fishing locally for coarse fish alongside lesser mortals.

Angling fever inevitably added more pressure on fish stocks with the formalising of leisure and growing numbers of weekend anglers and regulations were imposed at many levels. In addition to legislation protecting waterways and fish, a proactive approach to increasing fish stocks was taken by local angling societies and associations. These were first formed from the late eighteenth century (and there are many claims as to which was the earliest) with numbers exponentially increasing in the nineteenth century. They were committed to cleaning, protecting and restocking sections of river. The Thames Angling Preservation Society did much to clean and restock sections of the Thames as did many other local societies and fishing clubs of the period. Initially the work of 'gentlemens' clubs' this commitment was adopted at all levels as working mens' coarse fishing clubs gathered enough funds to rent their own waters. It was in all their interests to protect and maintain fish stocks.

Angling literature

From the mid-eighteenth century there were some key publication on fishes (rather than anglers guides), by Pennant in 1766 in volume III in the series *British Zoology* and, in the early nineteenth century, among the most well known is by Yarrell: *A History of British Fishes* (1836). The natural variation in colour or age within some fish species led to some spurious identifications. Both salmon and trout go through several stages in their development, changing in colour and appearance, which led to a number of anomalies. The brown trout was once designated eight different species and the variety found within a single cyprinid species was also a problem area. The 'auzurine' or blue roach (in reality rudd) was cited by all the above authors, also the 'dobule' and the 'graining' who were both dace, the latter apparently showing a northern distribution as shown in the latin name *Leuciscus lancastriensis* and still illustrated in 1879 (Pls 11a and 11b). These all quietly disappeared from the nomenclature by the twentieth century but illustrate the enthusiasm of the period for the speciation of fish.

There was also an increase in the publication of angling books, some of which ran to many editions. Thomas Best's *A Concise Treatise of the Art of Angling* was first published in 1747, and ran to at least nine editions, selling over 20,000 copies. Best

still perpetuated the myth that pike were rare and introduced to Britain. His section on rod making showed little had changed since the *Treatyse*. Salter's *Anglers Guide* in 1814, ran to six editions in 11 years, a keen angler it was written as his health declined and he spent less time fishing. He followed it with *The Trollers Guide* (mid-water fishing with bait), concentrating on pike fishing, which was equally popular.

One of the pioneers of angling journalism was Edward Fitzgibbon, who used the pen name 'Ephemera'. A parliamentary reporter, he also wrote angling pieces, in particular as angling editor for Bell's *Life in London*. In 1847 he wrote *A Handbook of Angling* that ran to four editions, and remained a keen angler of salmon, pike and roach. A heavy drinker, he died at 54 (Booth 2011, 82). He was part of that generation of gentlemen all round anglers, not defined by fly or bait, seeing sport in both.

Angling clubs

Angling clubs reflected social division, some sought to keep their membership socially selective. A limit on numbers, a high annual subscription and the fact that new members had to be proposed by another member, ensured a club could exercise quality control. These were essentially gentlemen's clubs or societies, fishing their own private waters. The working classes were effectively excluded, not only were they considered unsophisticated but even as a possible 'health risk' (Lowerson 1988, 106). The 'health risk' sector formed their own egalitarian clubs, non- selective with low annual fees. Limits on membership were most likely to be determined by the numbers their public house headquarters could accommodate for meetings. They also acted as benefit societies, where part of the subscription went towards a hardship fund. This supplied vital support at a time when there was no social security system. As they became more organised some clubs built up enough funds to rent waters exclusively for their use, generally for coarse fishing.

Evidence of the meeting place of The Salford Friendly Anglers Society, founded in 1817, survives today at the *Kings Arms* public house in the town. The sign *Ye Anglers Clubhouse* can still be seen on an outside wall. Their first meeting place was the 'Fishermen's Hut', bought in the 1860s but was demolished in the early 1900s. A contemporary painting and photograph show the building, which became increasingly dilapidated. The club archive also includes surviving treasurers' accounts from 1819, when 27 members paid a subscription of 6d. Part of this went towards a monthly savings scheme, sickness and death benefits. Fishing was originally based round the River Irwell but today the thriving club has free membership with access to many other waters, and is very active in keeping clean and restocking waters with coarse fish and trout (www.salfordfriendlyanglers.co.uk).

The wealth of documented detail, which rapidly increased after Walton in the seventeenth century, contributed to the retrospective false impression that egalitarian sport angling is a recent development, previously restricted to wealthy landowners or men of distinction. The view has persisted that poor men may have fished but for food,

therefore it was not sport. Similar questions could be asked of deer and boar hunting in some circumstances. Booth (2011, 31) quotes Chevenix Trench (1974, 19) regarding the absence of angling lore in the Graeco-Roman world as evidence it was not the sport of masses but the 'rhapsody' of a few 'urban intellectuals'. However the pursuits of the 'masses' were rarely recorded in earlier literature. The oral tradition detected in the *Treatyse* of 1496 reflects an established craft, mostly invisible; undocumented because print was expensive and restricted largely to religious tracts. There are snippets of angling advice in a few medical tracts and recipes of the fourteenth century already referred to (Hoffmann 1997, 346) and some earlier evidence from Europe (Hoffmann 1985). Angling lore would have been part of an embedded oral tradition sharing of all types of skills and practices at times for which little evidence survives.

Despite the evidence in the *Treatyse* for the long history of angling and increasing numbers of angling writers from the seventeenth century upholding it as a gentleman's pursuit with elite recreational angling on private lakes, some social prejudice persisted. William Taplin was particularly disparaging in his *Sporting Dictionary* of 1803 and it is surprising, given his views, that he included angling at all; it appears that his scorn was directed at coarse fishing. His biographical details are elusive but he makes obsequious remarks in both his dedication to the Earl of Sandwich, Master of his Majesty's staghounds (with whom Taplin had hunted and enjoyed hospitality at the Master's Lodge in Windsor Great Park) and the preface. This social connection is clearly very important to him, he prefers the chase to all else and a large part of the dictionary is devoted to the horse. In the preface, having promised to provide the most up to date information and only that of which he has knowledge, he then quotes a 'well known celebrity' who finds fishing dull and 'only likely to teach patience to a philosopher'. Interestingly, when he describes the fish, he notes carp and tench are only likely to be found in 'ponds, 'motes' and still waters, 'too shy and cautious to become hasty victims of human intervention', further evidence that carp were not then common river fish. Anglers are derided, 'those classes of society who have no property but their trades', wasting their time in frivolity after 'a paltry dish of fish'; he does not see any form of angling as an elite sport, at odds with some of his contemporaries. Anglers waste time that should be spent in business and are likely to end up with their families in the workhouse. His evidence for this is an observation that in small country towns with a fishing stream 'the profitable part of the pleasure may be instantly perceived by the poverty of the inhabitants' (Taplin 1803). However research does not reveal angling among reasons for entering the workhouse, unemployment or low wages leading to destitution were the norm. He would have thoroughly disapproved of the rapid increase in coarse fishing later in the century.

Developments in fishing tackle and commerce

The growth in coarse angling as a popular pastime promoted the development and marketing of tackle and broadly divides into pre- and post-1850. From the mid-

nineteenth century the rapid increase in the numbers of 'urban' anglers and their clubs presented new commercial opportunities and marks the beginnings of the social divide in coarse and fly fishing. Up to the late eighteenth century stockists had mainly supplied wealthy nobility and gentry; at that time all round bait and fly fishermen. They now looked to reach a broader market, offering cheaper rods and reels, aided by the beginnings of mass production. Many patented reels were developed by anglers and marketed through a tie up with a supplier. These were also a response to the general increase in angling and the popularity of competition, match fishing and casting competitions as well as increasingly specialisation of angling techniques, which was to escalate in the later part of the twentieth century. The structured wages and working hours formulated in the Industrial Revolution to maximum the productivity of steam powered machinery created fixed 'leisure' time in the modern sense. Many working class men took their free time to enjoy a perceived Waltonian angling idyll, though beer, betting and competition were not in the spirit of a contemplative atmosphere.

Centres of fishing tackle production and suppliers had spread outside London from their early core in the area of the city near St Paul's which, as we have seen, had also been the base for early booksellers. By 1850 there were many suppliers elsewhere in the capital and farther afield. This was a natural evolution in established areas of metal working, such as Birmingham, where Redditch became a major centre of hook production, linked to a traditional industry of needle making. Skilled craftsmen, such as engineers and clockmakers, made many of the early brass reels and multipliers. High quality artificial baits and lures were also made by jewellers and are valuable collectors items today.

In the mid-eighteenth century, many rods were still all purpose though there were some specialist forms. Best, writing on rods in 1787, showed little change had occurred since the *Treatyse* in the late fifteenth century. Although commercial tackle was becoming more widespread, homemade rods were still both a necessity and tradition and instructional guidance was given in many contemporary angling books. In the early to mid eighteenth century a typical all purpose rod was 14–17 ft (4.2–5.2 m) long, composed of a 7 ft (2.1 m) ash butt, 7 ft (2.1 m) hazel mid-section and a top 2 ft (0.6 m) of yew, with a whale bone tip, which was similar to the seventeenth century predecessor (Herd 2003 139). One of the most common rods used by the working class angler was the 'roach pole' used for both roach and dace. It was at least 14 ft (4.2 m) long and the 'pole' was later made in sections that could be stored within the two pieces making up the butt end. This practicality was a necessity for travel as the extended 'pole' could go up to 24 ft (7.3 m). These were most commonly used on the Thames and Lea rivers in and around London and had a long history. In competitions in the Midlands and the Fens they were sometimes banned, their extreme length seen as providing an unfair advantage. This had started as the simplest and cheapest of rods, in its initial single form with a line tied to the tip it hark backs to earliest times of angling and survived in various forms in an increasingly sophisticated market. By

the mid-nineteenth century professionally made rods were much more widespread, and greenheart and split cane (bamboo) were used. The latter was to be a mainstay in rod production and the majority of rods sold by Hardy's (founded 1872) were bamboo rods from 1885. Glass fibre was a much later development, appearing in 1954, and carbon fibre in 1976 (Turner 2009, 316).

On the evidence of contemporary art from 1700–1850 Turner (2009, 58) suggests that until the end of the eighteenth century reels were only used by more affluent fly or pike trolling fishermen. Bottom fishing or 'bait' anglers are not shown using a reel. The early reels or 'winches' were brass and those with gears were called 'multipliers'. Ustonson's, trading in the late eighteenth century, advertised a 'multiplying brass winch' in 1768. The gearing system wound in more line per revolution than a simple free running narrow spindle, but the brass was easily worn. One of the first Allcock brass multipliers was advertised nearly a century later (1865–1871) and these reels are now a valuable collectors' item.

For a long time the line of choice had been horse hair, from the tail, twisted into the required thickness. The quality was based on the even texture and thickness of the individual hair and certain colours were said to produce better line. The hair was twisted and knotted together with thinner hairs used to taper the line. Animal gut, as recorded earlier by Pepys, was also used, as was silkworm gut, first advertised in the early eighteenth century. Silk gut became very popular by the mid-nineteenth century with the best quality imported from Spain, also Italy, Sicily and Portugal, with the longest gut brought in from Syria. Silk and hair were sometimes used in combination and lines were also made from Indian weed (jute). The cheapest line was hair at 1d per yard (3 ft or 0.9 m), woven silk and hair at 2d per yard.

At the terminal end of the line floats were made of cork and quill, as they had been for centuries. The 1760 edition of Walton shows a cork float with a quill running through the centre. Responding to the rise in coarse fishing in the mid-nineteenth century, suppliers began to expand their range of floats but they remained relatively limited until after World War I. The first documented use of artificial bait is in Walton (1653) with many more known from the later eighteenth century and particularly the mid-nineteenth century. Artificial baits were made of a variety of materials but often in metal, mimicking a small minnow, and were used for trolling and later spinning. Artificial minnows were made of many materials, including rubber, sole skin and horn. Others were made of glass, some with sparkling tinsel centres, others were jointed to enhance the illusion of a live fish. In 1754 *The Anglers* magazine listed 'Devon minnows' of gold, silver and natural colours. Salter, in his *Anglers Guide* (1814) describes commercially available trolling baits; painted fish and frogs of wood, pearl and leather, though personally he preferred natural bait, thinking a pike unlikely to take anything of wood or leather. Plenty of other anglers must have disagreed and in a later edition he admits to their use in some circumstances. A popular form, which was not naturalistic but spun very well to attract fish, were 'spoons'. Probably the first example of function over form, the weighted body and lugs near the head end aided

spinning, with a hook fixed at the end. Artificial minnows and spoons were fixed to the line where as the Devon was free running. By mid-century these 'spinning' baits became very popular.

Hooks were much improved after 1740, with the discovery of steel making using a crucible. A patent of 1789 describes a method of mass production of up to 10,000 at a time (Herd 2003, 144). London no longer dominated the hook market as it had with Kirby's hooks in the seventeenth century, though Kirby hooks were being exported to America in 1773, as reported in the *Boston Newsletter* (Schullery 1987, 23). Hook making centres at Kendal in Cumbria and Limerick in Ireland were pre-eminent in the eighteenth century but, by the early nineteenth century, Redditch, outside Birmingham, was the main centre. The transition to hooks evolved from a cottage industry bending needles into hooks and as demand grew as it became mechanised. Turner (2009, 59) lists 17 hook makers in Redditch in 1823 (supplying a range of clients from fishing fleets to sport anglers) and 18 needle makers of which eight were also hook makers. Demand was high and efforts were made to standardise hook size, but there remained a number of different scales concurrently in use for some time. Eyed hooks had been known for a long time but, surprisingly, failed to come into common usage until quite late. The patent on eye hooks was lodged in the 1850s, by Joseph Warner, at that time operating as a hook and tackle maker in Breedon, Worcestershire (Turner 2009, 264). Allcocks sold eyed hooks from 1867 but, in 1896, Gedney, in *Angling Holidays* writes 'those of us who use eyed hooks' (1896, 30) indicating they were far from universal.

The success of angling suppliers of the later nineteenth century was previewed by an unusually named London supplier. The advertisement for Onesimus Ustonson, trading in 1770, illustrates the wide range of angling equipment for sale at that time. He bought an established tackle business at the *Fish and Crown*, which had two previous proprietors dating back to 1700, on the corner of Temple Bar and Fleet Street, London, and the family traded under that single name from the 1760s to 1855. The business moved next door into Fleet Street to catch the passing trade of merchants and gentry. He offered the finest quality rods with script engraving on brass and was an early supplier of multiplying brass winches. He became the Master of the Guild of Turners in 1783 (as did his son in 1818) and the Ustonson family business was the supplier of choice for years, holding royal warrants with George IV, William IV and Queen Victoria. Apart from royalty, he had many wealthy and titled clients including Joseph Banks, who accompanied Captain Cook on his voyages, and George IV. A surviving invoice from 1828 shows the king practised both fly and pike fishing. The Royal Collection still holds a luxury boxed set including a rod, winch, net and pike lure (Turner 2009). It is likely that he also produced unmarked cheaper versions and he saw the potential in the expanding market for accessories such as angling stools, leather bottles and 'other curiosities'; all things anglers did not know they needed (a commercial strategy, which continues to tempt anglers today). Some of his contemporaries still sold angling supplies along with other goods, for example Henry Patten at the *Saw and Crown*, Holborn (*c.* 1771), was a razor maker and cutler

who also sold a wide range of fishing tackle including multiplying brass winches, hair and silk lines and artificial baits. Turner's (2009) study of trade cards of the period and registered tradesmen highlights the growth of this market in the later eighteenth century.

Fish welfare

At a time when angling was popular at all levels what of the fish? How were they regarded? Were they sentient beings who suffered pain? English popular sports such as cock fighting, bear and bull baiting and dog fighting had, for centuries been enjoyed, especially by the lower socio-economic groups, with little thought to animal suffering. There were always voices of dissent, but it was not until 1824 that the Royal Society for the Protection of Cruelty to Animals (RSPCA) was founded. The philosophical point as to whether animals suffer, had been argued by many, including Jeremy Bentham. Thomas Berwick, famous for his woodcuts in the eighteenth century, hated blood sports but was a keen angler: 'I argued myself into a belief that fish had little sense and scarcely any feeling' (Thomas 1984, 177).

As fish are not cuddly or furry, do not bleed much, cry out or engender anthropomorphic feelings, they have not ever been the subject the same welfare issues as mammals and birds. How they experience pain is still being studied. Reptiles too are on the fringes of welfare consideration and insects quite excluded.

There were a few voices in support of fish welfare: Charles Lamb in 1799 and the poet Byron who found angling cruel. Thomas (*ibid*.,) points out that angling escaped censure largely because the fish were usually eaten, though by the late nineteenth century many caught for sport were returned to the water. Animal welfare in the slaughterhouse started to be under review in the late eighteenth century, but there were cruel treatments of live animals that were believed to improve them for the table. This included plucking live poultry (ibid., 178) and crimping; cutting down the side of the live fish, then leaving them in water for an hour or so before boiling – to make the flesh 'firmer'. As many thought fish felt no pain condemnation was limited. Francis Grose, in his dictionary of the vulgar tongue (1811) found it cruel, noting that it was a practice of the London fishmongers. The chef Escoffier (1846–1935) decried it as barbarous and an English specialty. Tench suffered in particular. Bradley (1728), in a recipe for baked tench, recommended the cook 'gut them, scale them and then kill them'. Apparently they needed a strong blow to the head or they would live for many hours, possibly attempting to escape the pan (www.foodofengland.co.uk). Mrs Beeton has recipes for crimped skate (1982, 155) and cod *a la italienne* using '2 slices of crimped cod' (*ibid*., 122) though, as marine fish, they were probably more fortunate and crimped post mortem. The term dates back to end of the seventeenth century and Davidson (1999, 227) describes crimping as gashing the flesh soon after it has been caught and before rigor mortis sets in, as if it was to be carried out soon after death not before. There is some confusion as Grose and Escoffier clearly describe the fish as live and Davidson (in the glossary of the facsimile edition of Hannah

Glasse's *The Art of Cookery*) adds 'the idea that gashing had to be carried out on live fish gained some currency among those who did not comprehend the connection with rigor mortis'.

There is, therefore, some encouraging evidence that fish were beginning to be considered as sentient beings, who might suffer through crimping, or being used as live bait, though there was yet to be development in hook design to minimise the damage to fish returned to the water.

Conclusions

This period is perhaps the beginning of the most 'active' in the sense of coarse angling development, largely stimulated by the changes in work practices, the industrialisation and urbanisation of working men, who sought a new outlet in free time from the relatively modern concept of fixed working hours. In urban areas much of their food was shop bought, to the dismay of Cobbett as we have seen. The clear demarcation between work and leisure created conditions ripe for the expansion of sporting activities demanding a slow measured approach such as angling. This was in contrast to other more violent 'working class' interests such as cock fighting. However, betting and booze was just as much as part of angling as other pastimes. The new aspiring middle classes and the traditionally wealthy were another breed of angler, often fly fishers, though not always exclusively, who often kept themselves separate through access to private waters and exclusive clubs which essentially were unaffordable to the many thousands of working class anglers. The latter responded by setting their own terms and conditions and through clubs and associations became a strong voice in coarse fish stocking and conservation. Canals were to extend the waters available to the coarse angler close to home but it was the railways that were to give them the freedom to travel beyond their immediate waters.

Chapter 7

AD 1860–1952. Fair play

Introduction

From the 1860s increased mechanisation of factories and the impact of the railways had a significant impact on British life. Railways were first used for freight which allowed for the greater transport of fresh marine fish inland, especially when packed in ice, and then for passengers, opening up new possibilities for the urban coarse angler. The rural exodus had continued apace and, by 1914, four out of five people lived in towns. The population had increased dramatically in the nineteenth century shown in censuses of 1801 recording 9 million, 1851, 18 million and 1911, 36 million, attributed by Burnett (1969) primarily to a drop in infant mortality. Town and urban dwellers were not all employed in manufacturing but also in ancillary services like clerical work and transport; these sectors continued to rise after World War I. This increased what is known broadly as the 'middle class' (Burnett 1969, 292), aspirational 'white collar' workers affording leisure pursuits including angling. In the mid nineteenth century they were 10–15% of all society, but by 1911 had grown to 25% rising to 30% by the 1950s, a response to increased growth in numbers of salaried employees as managers and bureaucrats (Birley 1995, 105). The traditional pyramid model, with the greatest wealth at the top and poorest at the base, had developed a central bulge.

Over the previous 40 years angling numbers had increased five-fold with figures cited of 50,000 in 1878 to 250,000 by 1914 (Tranter 1998,16). Post-war social changes further broadened the appeal of angling and the commercial market adapted to serve a wider demographic with surplus income to spend on leisure. Allcocks had supplied anglers through the nineteenth century, initially with hooks and by the late 1880s with a range of rods, reels and floats. Their specialisation in a quality, affordable product was well placed to meet new demand in the post-war period (Turner 2009, 103).

The Waltonian code (conduct for an angling brotherhood set in a pastoral idyll in the late seventeenth century) was thought to have influenced standards of behaviour that reached beyond angling, including the behaviour of British forces in the recent

conflict. In 1919 journalists wrote in the *Fishing Gazette* that the ethos of fair play among fishermen had helped win the war and anglers would be unlikely to entertain Bolshevist thoughts (Birley 1995, 108). Post-war there were some changes in attitude towards field sports, particularly the mass slaughter of game birds, encouraging hunter's skill over a full game bag. This has been attributed to experiences of death in the trenches and revulsion towards conspicuous waste. Fishing did not engender the same empathy but, in fly fishing, smaller lighter rods and dry flies were promoted as more challenging and therefore more sporting (*ibid*., 148). In 1930 the British Field Sports Society was founded to protect a range of traditional pursuits including hunting, fishing and shooting (*ibid*., 228), though angling was the least contentious of field sports.

Angling analogies were also extended to Chamberlain's ill-fated pact with Hitler, with one journalist in the *Fishing Gazette* (8 October 1939) writing: 'Thank God our Prime Minister is a true angler! He possesses the patience, he strikes quickly at the right moment, he is willing to travel far for the fish he is after – whether salmon or peace. His methods are always sporting and for the benefit of his brother anglers. He does not admit defeat' (*ibid*., 315).

Sadly these angling virtues were not prevalent everywhere nor prevented another war but, as Birley (1995, 315) remarks, fortunately Chamberlain did believe in rearmament.

The class divide – beer and booty

Between the wars the recession of the late 1920s–early 1930s hit hard. At its height in 1931–2 unemployment was 22%, equal to 3 million (Burnett 1969, 285). Coarse angling was a source of solace for the unemployed, particularly the south Yorkshire collieries and Sheffield steel works. At that time 90% of angling club members at Worksop near Sheffield were out of work, while in Wigan, Lancashire, an estimated 1900 'serious' anglers were fishing local canals. The economic impact of unemployment was reflected in the reduction of railway angling excursions as, despite discounted tickets, anglers economised by walking or cycling.

Match fishing became very popular. Post-recession the north of England did not recover as well as the Midlands, London and the south so the prize money was a welcome source of income. Bazley (1930, 289) commented that no aspect of angling had changed so much in the last 20 years, with matches almost every weekend through the summer and autumn. At 'roving matches' anglers could move position, fishing within a fixed time limit; the later adoption of fixed pegs (positions) handicapped the more knowledgeable, evening up the chances for all. Matches were frequently the annual outing of an angling club, often sponsored by breweries, with added entertainments such as brass bands and betting. Sponsorship was eventually taken over by the federations, who sought to control the commercial interests who offered increasingly larger prizes, attracting hundreds of entrants. Initially contestants fished

as individuals, later they fished in teams with prizes awarded on the total weight of fish – and were often disputed.

After the recession Birmingham became the hub for coarse angling over Sheffield, previously the epicentre. Twenty-two clubs had closed in Birmingham during the recession but 52 were formed as the economy improved. Birmingham Tramways and Midland Red Bus services organised angling trips and competitions. However, the National Federation of Anglers Championships (sponsored by the *Daily Mirror* newspaper) was still focused on Sheffield, Hull and Lincoln (Birley 1995, 263). The Birmingham Anglers Club was to become the biggest in the world (Coopey 2010, 68).

From the late nineteenth century the associations had encouraged the return of live fish after weighing which signaled to Lowerson (1988, 119, 122) that catches had 'passed from the edible to the symbolic'. They promoted 'sportsmanlike conduct', removing 'disruptive' elements. The first national competition was not until 1906 under the auspices of the National Federation of Anglers (NFA), formed in 1903 and linking eight regional associations and 46,000 anglers. As a single body it was a strong voice in how the sport was to develop. The first national championships were held on the Thames in 1906 with teams fishing from fixed positions and was won by the Boston Association, but preferred rivers were the Witham, Trent and the Severn and dominated by Northern and Eastern clubs (Chevenix Trench, 1974, 228). Today the NFA is The Angling Trust, after merging with six angling and conservation groups in 2009.

Although the idea of an angling brotherhood was part of the mythology of ideals set down by Izaak Walton (1653), this did not exclude interclub conflict. However, the uniting of London's clubs in the late 1880s into a single association helped reinforce a sense of camaraderie, with friendly matches and visits between clubs. They ran fishing competitions, the prizes were often household items donated by shopkeepers, possibly strategic to justifying husbands' frequent absences (Lowerson 1988, 119). Publicans also supported competitions, providing transport and sweepstakes with prizes, recouping their costs through entrance fees.

The association negotiated deals with the railways for discounted rail tickets and special trains. Hundreds of fishermen, rod in hand, could be seen at London stations early on Sunday mornings. Tackle dealers would be on board to take advantage of a captive market (Coopey 2010, 68). There had been some resistance to allowing sporting activities on a Sunday, but with a 6 day working week, it was the only full free day for fishing and, in London, Sunday fishing became very popular. In the south, angling became clearly identified with working class anti-sabbatarianism. The Friendly Anglers of Shoreditch were the first working mens' club to fish on Sundays only, and were soon followed by others. This change took longer in the north as Monday had traditionally been a day off in pre-industrial times, especially in Sheffield, led by small workshops, often cutlers, resistant to change. The St Munday tradition carried on into the twentieth century: a day for angling and other sports such as pigeon shooting (Lowerson 1988, 110, 111).

Employers sponsored some clubs, but most relied on membership subscriptions. Getting everyone to pay was a challenge and an added complication in London was the number of bodies involved, with five beyond club level: The West Central Association of London and Provincial Angling Society, the United London Anglers Central Committee, The Central Association (who provided discounted rail tickets), The Anglers Benevolent Society and the United London Fisheries Association (who rented and stocked different waters). A report recommended uniting them under one committee and one subscription. This made sound economic sense, with all members paying a subscription of 3s a year there would be a healthy surplus for maintaining and stocking waters. Additionally a single subscription should be easier to collect (Wheeldon 1883b). By 1884 The London Anglers Association was formed (forced through by the railway companies), under the presidency of Philip Geen, the angler who carried out the initial study and report. Eventually, by the end of the century, 620 clubs joined. Estimating from an upper limit of 40 members per club suggested by Lowerson (1988, 109), over 24,000 anglers in London were club members. The Association dealt with railway companies regarding concessionary rail fares, regulated matches and set a competition timetable (*ibid*., 114). They acquired waters on rivers Arun (Sussex), Ouse (Huntingdon, Cambridgeshre) and round Ely (Cambrideshire). The Association could determine a club's survival if they were denied discounted travel and access to waters. Sheffield clubs had already harnessed collective power having formed their own association in 1869. In 10 years 180 clubs had joined, by 1914 there were 500, and over 21,000 affiliated members. As their own local waters were effectively out of bounds or polluted, the Sheffield Association bought fishing rights on some lower stretches of the Don, Trent and Lincolnshire waters. The preservation of fish stocks was a concern and, by the late nineteenth century, most clubs recognised closed seasons and returned immature fish to the water. There was a move away from the total weight of all fish caught in competition in favour of individual specimen weight. This led to the angler's eternal quest for a fish of record size, the rise in taxidermy mounting prize specimens and, in coarse fishing, came to be best epitomised in the cult of the carp.

Away days by rail to more distant waters were a regular outing for urban coarse fishers, whereas angling holidays had long been the preserve of 'gentlemen', unrestrained by the yoke of a 6 day working week and restricted annual holidays. They could afford the time and money for travel, accommodation and fishing licenses. As the coarse fly divide became socially entrenched these 'gentlemen' holidaymakers were mainly fly fishermen. Some recorded their experiences in print, such as Gedney (1896), who claimed he was only responding to the urging of others. His are very much the recollections of a gentleman who had fished all over Britain and Ireland. Primarily devoted to fly fishing for salmon and trout, he fished for pike in November and December, as the best months for using a spinning bait. The only coarse fish mentioned were netted roach and dace used as bait for pike. Pike fishing was very popular at this time, part of Booth's 'Golden Age' from 1865–1914. Gedney writes: 'Fly

fishermen as a rule profess a great contempt for "Esox Lucius" but "hungry dogs eat dirty pudding" and when salmon and trout are out of season there are many worse forms of sport than spinning for pike' (1896, 146).

The exclusivity of some areas of fly fishing for the late Victorians is demonstrated by the costs quoted by Gedney. He extols a days fishing on the River Itchen near Winchester, Hampshire where, on 1 day he caught 14 lb (6.3 kg) of trout. He paid 10s for the privilege, the equivalent of 3 years' subscription suggested for the amalgamated London associations described above. Additional costs give some idea of how expensive angling holidays could be. Ireland was a popular destination; at Ballinahinch in County Galway, 15s a day covered the fishing plus extras, and £12–£15 a week for the top hotels, plus drinks (Gedney 1896, 159). To put this into perspective, the weekly wage of the working man in the late 1800s ranged from agricultural labourers on 14s 6d, a male shop assistant on 28–30s (for an 80 hour week), a police constable on 35s and fitters and iron founders earning up to 42s. The poor spent 71% of their wages on food and drink so there was little room for extras, while the middle classes spent only 44% (Burnett 1994, 110). These figures show clearly that for many even a day's angling within reach of home on a cheap rail ticket was a luxury.

The gender divide

There was both a gender and class divide for anglers. Fly fishers were more welcoming to women mostly because it was one of the field sports embraced by the 'upper classes'. They had significant periods of leisure time and their field sports had traditionally included women to some degree. It was also seen as healthy, out in the fresh air, for women by aspiring middle classes (Lowerson 1988, 119).

A salmon caught by Miss Georgina Ballantine in 1922 on the River Tay weighed over 64 lb (29 kg), a record held for many years though some male anglers refused to believe she had no (male) assistance (Coates 2006, 140). Woman anglers enjoyed the glut of large blue fin tuna caught off the Yorkshire coast around Scarborough in the 1930s–early 1950s. The British record of 1933 was 851 lb (386 kg), landed by a male angler from a rowing boat. With tuna in decline today and their flesh so highly valued, especially in the Japanese markets, it seems unbelievable that these fish were largely made into fish meal. Contemporary film footage shows four men and one woman with rod and reel (advertising Hardy's tackle) catching very large fish (www.yorkshirefilmarchive.com/film/tunny-action). These sea anglers, fishing from a small boat, accompanied by a much larger vessel onto which the tuna were landed, were evidently wealthy.

Of 103 biographies in *Angling Giants* (Herd 2010), excluding Cleopatra and the fictitious Dame Juliana, only two women feature: both American, associated with fly fishing and a talent for tying flies, reflecting the masculine domination of the sport rather than the author's selection. The demographic of English 'working class' coarse anglers also remained traditional, a male preserve outside of club days out

when families were welcome to enjoy additional entertainments. Women may also have been seen as a restraining influence on alcohol consumption. There were a few exceptions such as the 'Brothers Well Met' annual ladies match but one of the London associations refused to issue women with privilege tickets (Lowerson 1988, 119). Not all associations were so biased, for example the Birmingham Anglers Association held separate matches and prizes for women, but they objected to not competing with the men (Coopey 2010, 69). However, in coarse fishing, women were a small minority and may also have been deterred by working class tradition where they looked after the home and family, any additional outside work left little time for leisure.

Women had entered some sporting fields that had formerly been male preserves in the early twentieth century. These were mainly middle class sports including tennis, golf and hockey, though the latter came in for plenty of criticism for its perceived effect on the delicate female form (Birley 1995, 40). The women's swimming team was a rare success for Britain in the 1912 Olympics and not considered to have had an adverse effect on femininity. On a class basis, women's football was an exception. It was very popular in the 1920s and egalitarian, with 150 clubs by 1921. However lack of support by the Football Association, who discouraged the loan of club grounds for women's matches, contributed to its demise. Only football seems to have been a 'working class' sport in which women participated, though some players met with family resistance, a reflection of traditionalist attitudes.

Angling literature and the 'old school tie'

Angling literature had a growing market. *The Bibliotheca Piscatoria* (Westwood and Satchell 1882) catalogues all books published on angling, fisheries, fish culture, parliamentary papers and bills up to 1882, charting growth in the market from small beginnings. Books had been initially by gentlemen for gentlemen, covering all aspects of angling until the nineteenth century when some became more specialised and also began to address a wider readership. Booth (2011, 106) estimates around 60 angling books were written between 1496 and 1800 while, in the nineteenth century, some 200 were published, mirroring the growth of the sport.

The *Family Herald*, founded in 1842, was a weekly penny miscellany for the 'lower classes'. The editors also produced a series called *Handy Books*, including *How to Angle; Including Trolling and Spinning* (anonymous and undated, but probably around 1860; https://archive.org/details/howtoangleinclud00lond). Priced at 3d it was one of a list of diverse titles, including etiquette, chess, meat carving, swimming and skating which claimed to provide the 'highest degree of excellence at the lowest possible price ... available for the Cottage ... also secures a place in the Mansion'. The introduction hails Walton's *Compleat Angler* as 'one of the most wholesome and genial books ever written'. It is a comprehensive guide and reinforces the reputation of carp 'more craft and wariness ... twigging the angler'. Only gudgeon ('sweet flavoured') chub and

bream ('inedible and detestable') are rated for the table. Bream has clearly fallen out of favour from its prime position in medieval ponds before the introduction of carp.

Apart from the *Handy Books* the first books specifically for the working class angler were by J. W. Martin, known as 'The Trent Otter'. He first published in 1882, his books, carefully priced to be affordable, were clearly written and very successful. A native of the Fens, his angling skills were shared in several volumes. In the preface to *The Nottingham Style* he writes that most people cannot afford valuable books on angling, but R. B. Marston (editor of the *Fishing Gazette*) had kindly given him a few, and he felt the time was right for a 'cheap' book on bottom fishing as most works 'don't do justice to coarse fish'. He also comments that rods can now be bought better and cheaper than home made ones (Martin 1885, 27). It was also good advertising for his own tackle shop, which opened in the 1880s in Newark, Nottinghamshire, and in 1900 in London. Books sold from his shop in 1906 cost 1s with 3d postage (Herd 2010, 205). The shop closed at the outbreak of the World War I when his son joined the army, and Martin himself died in 1915. He might be said to be the father of the 'Everyman' angling book and included advice on fishing techniques, tackle (with costs), reminiscences and fishing stories. The 'father' of angling, Izaak Walton was still in demand, in 1886 there was a cheap Cassells edition for 1s and in 1904 a luxury edition of *The Compleat Angler* cost 15s (Lowerson 1983, 32).

There were many 'celebrities' in Victorian angling, writing angling books and articles for sporting journals such as the *Fishing Gazette*, a weekly which started in 1865. Originally priced at 2d it was described in 1900 as a 'gentlemen's paper devoted to angling, river, lake and sea fishing and fish culture'. R. B. Marston had bought the *Fishing Gazette* in 1886 and remained the editor until his death in 1927; it continued under a new editor and the last issue was in 1962. Marston was the son of a publisher and one of a shrinking number of 'all round' gentlemen anglers, enjoying both bait and fly. He ensured the *Gazette* catered for every level of angler, broadening its scope to cover coarse, sea and fly fishing, though Herd (2010, 200) detects in his editorials a hint of retaining the 'status quo'. Names that come up repeatedly include Henry Cholmondeley-Pennell (1836–1915) and Francis Francis (1822–1886). Both wrote on all styles of angling and enjoyed pike fishing. Cholmondeley-Pennell was the first to write a book specifically on pike in 1884, reflecting its popularity at that time; he was an all round angler, sportsman and poet.

Francis Francis (an independently wealthy aspiring but unsuccessful novelist) was also angling editor of the sporting journal *The Field* by 1855, where he campaigned for improvements on fishing managements based on his own observations. He was an accomplished angler of both fly and bait and aimed to catch every species of fish in British freshwaters. He found a new market for his successful *A Book on Angling* (1876) which had run to several editions, by re-issuing it as *Angling* with much the same text but no colour plates or illustrations to reduce the cost and appeal to a much wider angling readership. *Angling* covered all aspects of fishing methods, different fish, flies

and tackle. His memorial in Twickenham cemetery, south-west London, though now missing the rod, still pays tribute to his writing and angling skills.

As well as practical fishing books some writers of the late nineteenth century also included erudite musings on the countryside and philosophy, more in the style of Walton. Eric Parker, in the preface to *Fine Angling for Coarse Fish* (1930, 31) selects his own personal favourites; for him William Senior 'brings to the printed page the charm of a generous mind, of wide reading, and a deep enjoyment of the sights and sounds of streams and broad waters'. From poor beginnings Senior became a journalist and highly respected angler, taking over at *The Field* after Francis Francis. Charles Marson published *Super Flumina* (1905) in which the title suggests Parker 'a scholar, a clergyman, a philosopher and a man of humour'. A famous name of the early twentieth century was Hugh Tempest Sheringham, journalist and editor of *The Field* from 1903 until his death in 1930: an all round angler he was skilled at both coarse and fly fishing and a prolific angling author (Herd 2010).

This period is an interesting combination of the gradual disappearance of the gentleman all round angler, who became more associated with fly fishing, and the continuing growth of coarse angling which, in an urban setting, became associated with the working classes. The all rounder in many fields is exemplified by Eric Parker himself (1870–1955), described by Birley (1995, 261) as 'Eton, Oxford, naturalist, fisherman ... the laureate of the shooters', a gentleman field sportsman harking back to an earlier age. In his introduction to *Fine Angling for Coarse Fish* (1930, 9) Parker declares his enjoyment of both fly and coarse fishing. The book received glowing reviews from the *Yorkshire Post*, *Cambridge Chronicle* and *Game and Gun.* It was part of Lord Lonsdale's 'Lonsdale Library' series on sports, games and pastimes, with Parker as general editor and bringing up to date changes in field sports. The titles show overall that it was not a series likely to appeal to the working classes, but coarse fishing was considered a worthy inclusion alongside separate volumes on salmon and trout. Authors were often titled men and army officers, female contributors were few and found in the volumes on hockey and golf, by then considered suitable sports for women. Parker also prefaced other books in the series, including *Shooting, Game Birds, Beasts and Fishes* and *The Keeper's Book*. In *Fine Angling* he also contributed chapters on angling literature and the eel. Six chapters are devoted to roach, some 65 pages reflecting the popularity of roach fishing. This common, adaptable cyprinid had long been popular with coarse anglers, especially on the Thames. It could be caught with the cheapest of rods (including the Thames roach pole). 'Anglers, in their thousands, fish for them nine months out of every twelve' (*ibid*., 37). Roach are also part of a chapter on dry fly fishing for coarse fish (along with dace, chub and rudd), which Edward Ensom (known as 'Faddist') prefers to all other ways of catching coarse fish (1930). Some of his recommended traditional forms of flies for chub and dace are shown in Plate 15a. Other species are comparatively briefly dealt with, around ten pages, except pike, with 30 pages over three chapters, a generous contribution given that it was written at the time of the 'Dark Ages' for pike. Here Dr W. J. Turrell cites

an anonymous angler who delights in all fishing but especially pike and deplores that it is 'more rapidly deteriorating than any other branch of the fisherman's art'. He attributes the depletion of pike to the non-return of immature fish, citing the prolific numbers at Slapton Ley, Devon where fish of 10 lb (4.5 kg) or under were returned, compared to the much smaller size limit operating elsewhere. However, for him the practice of returning the fish negates the satisfaction of fishing, 'more of a game than a sport' as the same fish may be caught over and over again (Turrell 1930, 205). He would be dismayed at current standard practice, especially on enclosed fisheries, with prize carp and other fish becoming marginally heavier from season to season and repeatedly being caught and returned.

Another 'gentleman' defender of coarse fishing, though a fly fisher and seemingly eccentric, Alexander Magri MacMahon addresses a 'Brother "Coarse" angler' in his quirky and entertaining *Fishlore* (1946). He asks why they might admire fly fishing as 'something wonderful, reserved by Providence to "your betters"' and questions why a 'first class bottom fisher' should admire him as a 'fourth rate fly fisher' (*ibid*., 123). MacMahon writes to dispel any misapprehension that fly fishing is difficult or tackle expensive and recommends the coarse fisher starts with the wet fly moving on to dry. 'You might end with saying there is a lot of humbug about trout and fly fishing. And, as a matter of fact there is'. Within the social divide that had developed between the two groups of anglers there were still voices from 'gentlemen' anglers defending coarse fishing as second to none.

Eating freshwater fish

Fish on the table was another matter; marine fish had long dominated the market. Migratory fish like salmon and trout always were popular though eel declined both in numbers and in demand. The cyprinids, pike and perch fell out of fashion in British cuisine.

The general dislike of carp in particular had been evident for some time. In the nineteenth century aspiring novelist and angler, Francis Francis, was not averse to eating a variety of cyprinids, especially from running clean waters, with gudgeon particularly praised for both angling and eating, despite its small size. Chub were deemed watery and coarse but he detested carp and describes one memorable meal where other diners 'gasped for brandy and water' after a mouthful and 'never was something so filthy'. The carp had been dressed with capers, lemons, spices and sauces, but did not disguise its foulness. The reader would not have been further enticed by the description 'imagine a musty bed flock out of some hospital dipped in strong sewage'. The carp was taken away and replaced by a turbot, much more to everyone's taste (1876, 83).

The Reverend Houghton, Oxford graduate, headmaster, rector and keen angler, writing in 1879 in *British Fresh-Water Fishes* comments that the cyprinid family was not highly rated for eating. Personally, he makes some exceptions, for example roach in

September and October when 'nicely fried'. Carp, he observed were 'little esteemed' though he liked a fat clean one, such as the one illustrated for him by artist A. F. Lyon and engraved by B. Fawcett (Pl. 12a). The best was tench, a good 2 lb (0.9 kg) fish being in no need of a rich sauce to make it palatable. Pike (Pl. 12b) seems to divide opinion, and Houghton (*ibid*., 67, 83, 113) considers that much depends on where they were caught, what they ate and the time of year.

Outside of London the memoir by Flora Thompson (1978) of life in an Oxfordshire village in the late 1800s, gives an idea of rural poverty. The villagers were landless, grew vegetables in their allotments and usually kept a pig. The only fish brought by hawkers were bloaters (mildly cured herring) who found them difficult to sell at a penny each (*ibid*., 118). In the nearby town, the fishmonger supplied the 'big houses' with fish, but most of his other sales were also bloaters (*ibid*., 423). There is no mention of any freshwater fishing, though she refers to boat trips up the river on summer holidays when nests were raided for eggs and small birds netted for eating to supplement their diet. This is surprising since Frank Buckland, among others, in the later nineteenth century observed coarse fish 'were much esteemed as food for the poor in certain parts of England' and 'remote areas', so in some rural areas coarse fish were still important on the table. Lowerson (1988, 108) observes in Victorian Nottingham roach and dace were sold for 3d per lb (0.4 kg). The *Mundella Fisheries Acts* of the late nineteenth century both conserved fisheries for sport but also safeguarded a food supply at a time when food supplies were of concern (Bartrip 1985, 301). A study of surviving earthworks left by disused ponds and moats by Hadrian Allcroft (1908, 492) left him lamenting that only salmon and trout were considered worthy of breeding and eating: 'The man who has caught his own basket of perch (half-pounders, if luck will have it) before breakfast, and eaten them grilled "in their jackets" within an hour or so, will never again sneer at such "coarse fish," or envy another man his trout'.

Inland, in the countryside during the later depression years around the 1930s, freshwater fish would have been found in rural kitchens with a range of other wild produce not seen in towns and cities. There remained a domestic niche market in the twentieth century in areas such as the Fens where freshwater fish were abundant. Hartley (1954) records tips from Fenland fishermen for cooking muddy pond bottom feeders, such as barbel (sold in Nottingham markets) and bream. Baked in clay and paste, she found them clean tasting and of fine quality, but chub were disappointing. However, on the whole, England had clearly long fallen out of love with eating freshwater fish and there is scant literary support for their palatability. The few comments on the culinary appeal of coarse fish are generally not very encouraging; pike is good for soup, it was hard to speak in praise of the chub – 'though some people like them; and leave it at that' (Ensom 1930, 194). Bream, the prime fish of medieval ponds before being supplanted by carp is similarly despised 'I should like to shake hands with an Englishman bold enough to set bream before his guest' (*ibid*., 146). An unattributed quote from an English gentleman in the 1930s listing suitable fish to

serve writes 'with such a selection the English housekeeper is never driven to fish such as carp and pike, the cooking of which occupies whole pages in continental cookery books' (Thomas Ellis 2004, 191). English cuisine was now firmly marine-centric when it came to fish on the table. In contrast, the increasing popularity of freshwater fish as anglers' sport was the catalyst for further development of artificially enclosed waters, increasing fish stocks and the a greater range of specialist tackle and accessories.

The angling industry

The accelerated growth in angling from the first half of the nineteenth century is highlighted by contemporary statistics. Estimates from the *Fishing Gazette* suggest there may have been 50,000 anglers registered in clubs by 1878, rising to 100,000 at the beginning of the twentieth century and possibly 200,000 by 1914. Many lived in the expanding industrial areas where new railways and increased disposable income in the workforce were key elements in the rising numbers of working class anglers and coarse fishing. In Sheffield only 1% of anglers were able to access the pure trout waters of Derbyshire and the local River Don was heavily polluted. Lincolnshire waters became a popular venue, anglers often travelled 50 miles (80 km) by rail for coarse fishing, using discounted tickets available through clubs (see above). There, they fished slow marshland rivers developing their own 'Sheffield style' (Lowerson 1988, 105, 112). Other regional styles and tackle developed to suit local waters, 'Nottingham' for the fast flowing Trent and 'London' for the Thames and the Lea. Competition thrived locally between clubs, regions and fishing styles.

Game fishing was also on the rise; 'fly fishing' had started to attract a more elite following, all good news for suppliers, with some rejecting coarse angling as a lesser sport. It appealed to the aspiring middle classes seeking more socially elite clubs and access to the fast flowing clean waters more traditionally the private preserve of landowners and out of the reach of the 'blue collar' urban workforce. In the first year that trout rods were licensed (1879) some 9109 permits were issued, rising to 55,069 by 1911 for England and Wales (*ibid*., 106). The gentleman all round angler was still to be found in the twentieth century, fishing with fly or bait, extolling the virtues of salmon or trout on the fly, trolling for pike and bait fishing for roach. For them there was no superiority in one form over another, but some class divisions between fly and coarse fishing had become entrenched around the 1880s. Trout waters became increasingly expensive; on the River Meon in Hampshire the cost was £50 a season in 1900 (*ibid*., 106). Fly fishing increasingly became used as a symbol of refinement and wealth with the dry fly seen as superior to the wet fly. The cost of salmon fishing spiraled over the century; one salmon beat on the Tweed rented out at £20 per annum had risen to £200 in the 1830s some 50 years later. By the end of the nineteenth century there were very few waters not controlled by landlords or clubs for salmon fishing (Herd 2003, 168). Pike remained an anomaly, although usually caught by trolling mid-water and technically coarse fishing, it was still a favourite

with some fly fishermen who regarded it as a game fish. It could also be caught on 'flies' resembling prey such as fish fry and frogs that are still produced today (Pl, 15b). The popularity of pike was also its curse, by 1907 J. W. Martin considered good pike fishing rare on public waters, decimated by anglers (Booth 2011, 107). The roach, a common adaptable cyprinid of no great size, but which gave good sport, remained the typical fish of the Thames coarse angler.

Today the following comments might seem patronising but, seen in context, were unintentionally so. They sum up both the divide and commonality between the urban coarse angler of the late nineteenth century and more affluent fly fishermen. Town anglers: 'forget the petty cares of life and sordid belongings of a lot of poverty. That sport is not of an extensive kind nor of a high class, but he enjoys it and appreciates his little show of roach, dace or barbel as much as a man of means appreciates trout or salmon' (Senior 1883, 45).

Senior also comments that carp are 'that rarest of objects in the fisherman's basket' (*ibid*., 44). It seems carp were still then uncommon outside of enclosed ponds, or may reflect the perceived difficulty of catching them. Wheeldon (1883a) also noted that angling (coarse) is very popular, especially in London or any manufacturing centre, and the sport of the poor man. By that time salmon fishing had become almost exclusively for the wealthy classes.

The increasing specialisation among anglers was to create demand for specialist tackle. Development of rods, reels, etc, is a specialist subject and can be followed in more detail in Turner (2009) and Herd (2011). The catalogues of Allcocks, Hardys, Farlowes and other major suppliers are also an important source of angling history from the late nineteenth century. They demonstrate advances in reel development with a key design in 1896, the Coxon Aerial, specifically for coarse fishing, in particular for chub and dace. Henry Coxon designed it in partnership with Allcocks. A simple reel, it came in four sizes, made lightweight by spokes, which allowed the line to dry more easily, and was gearless. In contrast, the early Nottingham reels, dating from the 1860s, were wooden, with a wide arbour and free running. The large number of patents lodged from the later nineteenth century illustrates the rate of development. Reels were made from wood, brass and aluminium and, in the later nineteenth century, the first manmade materials were introduced. Parksine and xylonite (based on cellulose) were unsuccessful, but Bakelite (resin based), patented in 1907, was successful and used in many reels (Turner 2009).

From 1914 until the Armistice in 1918 there was a general hiatus in the commercial production of tackle, as munition production took precedence. Lead shot, used to weight the line, was unavailable until 1 January 1919 (Birley 1995, 108). Allcocks continued to make hooks through wartime, but for the Admiralty (Turner 2009, 103) as fisheries helped feed the nation. There was some limited production of rods and reels in 1914–1918. It was during wartime that Hardy's introduced interchangeable parts between the most popular reels (*ibid*., 364), streamlining production. Hardy's

were prolific rod makers, but between 1914 and 1918 only ten new models appeared, mostly for coarse fishing and salt water with one salmon fly rod (*ibid*., 318).

Suppliers saw scope for developing a wider range of specialised fishing equipment. Anglers would be wooed by different sizes, weights and strengths of rods, reels and lines for different fish and weather conditions. This divergence away from the all purpose rod and line was first seen in the late eighteenth century and developed in the nineteenth century but accelerated after World War I. Although there was a hiatus during the war and adverse economic conditions during the depression years of the late 1920s–early 1930s and World War II, a wide range of fishing tackle and accessories were produced, including the first electric bite alarm in 1949, using a flashing bulb (Clifford 1992, 173). Hardy's issued 117 different rod models for coarse, fly and saltwater fishing between 1914 and 1952; many made for a number of years (Turner 2009, 318). Largely split bamboo, they were often named after famous anglers, the 'H Cholmondeley-Pennell Combination' (1926–1934), others described their purpose such as 'The Perfection Roach' (1934–1955). Live baiting had not been influenced by welfare concerns; the 'Live Baiting Pike' (1938–1952) had an unfortunately long production run for those fish used as live bait.

In some areas progress was slow, with traditional methods entrenched. Hook sizes were still not classified under a universal scale despite several efforts. There were conflicting scales from different manufacturers and even anglers such as Cholmondeley-Pennell, who later regretted he had only added to the confusion. The 'new Redditch scale' (named after the area of famous hook makers), adopted between the wars and still used today, helped unify sizes, though not entirely.

Rods had become much shorter and lighter than those of the nineteenth century. The dominance of split bamboo (lighter than native woods used earlier) would not be challenged by glass fibre until after World War II and carbon fibre in the 1970s. The lighter, shorter bamboo rods were easier to use and increased casting distances. Keen barbel angler F. W. K. Wallis (1862–1959) was a master of the Nottingham style and made an exceptionally long cast of 235 ft (71.6 m) at a 1904 tournament (Herd 2010, 307). Using the longer and heavier rods of the nineteenth century 50–60 ft (15–18 m) had been a record. In his chapter on modern light float casting Wallis instructs, using an 11 ft (3.3 m), 12 oz (0.34 kg) rod of split and whole cane with a free fast running reel, how the angler can make a 100 ft (30.4 m) cast. The reel should be light and free running using different quill floats (described as pelican, goose, swan or golden-eagle) depending on the conditions. Floats of cork, which were common 20–30 years previous to his time of writing, are apparently a 'thing of the past' and quills described as 'natural or otherwise' (Wallis 1930, 265, 269).

Changes in rod length were observed on the Norfolk Broads, increasingly popular with anglers after World War I. Rudd (aptly named) describes how the Broads had changed 'since the war'. Locals continued to fish the rivers while visitors were attracted to the Broads. Locals fishing the river Yare used the 'Norwich Rod' a four

jointed rod of 14–16 ft (4.2–4.8 m) of lancewood, pine or deal, with a fixed line on the top ring of the rod one foot (0.3 m) shorter than the tip of the rod, by then an anachronism but very effective (1930, 271). By 1930 most anglers used lighter shorter rods ideally 12 ft (3.6 m), with a reel and running lines. Roach and bream were good summer angling while pike fishing and coastal sea fishing were popular in the winter. Rudd commends Norfolk as the best county in England for all round fishing.

The late nineteenth century also saw an increase in sundry angling 'necessities' including waterproof clothing and waders advertised in the *Fishing Gazette*. A Norfolk two-piece suit, costing £2 5s was advertised by Bell and Pritchard in 1898. Cordings of Piccadilly and St James Street, London advertised waterproofs and a coat in a case, the latter in 1910 cost 50s. Burberry's 'Gabardine Combination' suit was gabardine outside with a woolen lining and in 1910 cost 63s for the coat and 42s for the breeches. There was also a 'slip on', a coat. Burberry's claimed:

> 'Rain runs off like dew from a leaf.
> Hooks will not penetrate beyond the barb.
> Self ventilating, never hot, never cold'
> (*Fishing Gazette* LV, July–December 1907. www.Archive.org)

These clothes were a draw for aspirational middle class anglers as well as the more traditional upper class market, but the majority of anglers fished in the same clothes they used for everything else. However, for those who could afford it, angling marketing had come a long way from Kirby's hooks of the mid-seventeenth century. Accessories such as line dryers, stools, bags, waterproof clothing, hats, waders, pocket-knives and even a tobacco pipe found a ready market among both aspiring middle and established upper classes.

The successful angler might wish to immortalise a prized catch. In the Victorian period taxidermy became big business and cased fish were an integral part of the angling industry. Some famous names of the period were Rowland Ward, Peter Spicer, W. F. Homer and, perhaps most well known, John Cooper and Sons. Cooper was self taught and started in the 1830s. He favoured bow-fronted cases with gold leaf edges. Today these are very collectable and can be accurately dated by the style of the label, which changed every decade. Some of the sizes of fish recommended for 'preservation' by Wheeler (1897) would seem very small today, in particular a 6 lb (2.7 kg) carp and a 3 lb (1.3 kg) tench. In 1910 the London store, *Gamages*, was advertising in the *Fishing Gazette* prices for mounting fish in glass cases, with glass ends and a gilt mounting. Prices went up exponentially with the size of the fish, Wheeler's 6 lb carp would have cost £1 4s 6d in a flat fronted case, £1 9s 6d in a bowed glass front and £1 15s with all bowed glass. Bow fronts made the fish look bigger. Gold letters were extra, up to 50 letters or numbers were 3s 6d, while two or more fish in the same case required an individual quotation. John Cooper also advertised in the *Gazette*, but no prices were given. More traditional angling art on canvas also portrayed fish in the guise of prey and trophy, celebrating man's dominance over nature. Artists painted bucolic scenes

of anglers with rod and line on the riverbank or in a boat in a controlled utopian rural landscape, exemplified by the work of Alexander Frederick Rolfe (1814–1875). Close studies of fish, either dead or in an unnatural position in the water, to show them off to best advantage, were skillfully painted by a younger Rolfe (Henry Leonides, 1823–1881) and Arthur Rowland Knight (1879–1921).

Angling celebrities

Isaak Walton (1593–1683) was England's first in a long line of celebrity anglers. The late nineteenth and twentieth centuries had many authors and practitioners well known in angling circles. As today, a celebrity endorsement was a gift to the supplier. Francis Francis (1822–1886), Alfred Jardine (1828–1910) and Henry Cholmondeley-Pennell (1836–1915) were among the legends of the late nineteenth century. Henry Coxon (1862–1918) and Alfred Illingworth (1869–1923) both designed improved reels. A little later, F. W. K. Wallis (1862–1959), mentioned above for his casting, entered the literary canon. Looking through the list in *Angling Giants* (Herd 2010) there still remains a middle to upper class bias, in terms of education as much as class.

An exception was J. W. Martin (1852–1915), known as 'The Trent Otter' and, in the twentieth century, Bernard Venables (1907–2001), who left school at 15 and, while working at the *Mirror* newspaper in the late 1940s, created a cartoon strip *M. Crabtree goes Fishing*, based around a father and son coarse fishing throughout the year. This proved enormously successful and he was promoted to angling correspondent for the paper. This was followed by a 'Mr Crabtree' angling book published in 1953, in which the recommended all round rod was cane, one-third split cane (bamboo) and two-thirds whole cane for beginners fishing in still and calm waters; though ideally a roach rod, it was versatile. On fast heavy waters two-thirds split cane and one-third whole cane was preferable, suitable for carp, bream, tench, chub and barbel. Of three recommended reels one was the *Aerial*, originally developed by Henry Coxon in 1896. The book sold in large numbers over the years but did not benefit Venables, as the royalties went to the *Mirror*. He left the *Mirror* to start the *Angling Times* in 1953, the success of which contributed to the demise of the *Fishing Gazette*, which had been the main source of fishing news since 1870.

Lakes and stocks

A new part of the angling landscape was created in the scarred craters left after the extraction of gravel and other aggregates. Many were flooded and made into artificial lakes used for recreational activities including angling. They became very lucrative businesses, drawing anglers with the promise of plenty and sizeable fish. Reservoirs were also prime angling waters with some within easy reach for Londoners, for weekend fishing. Cheshunt Reservoir, Hertfordshire, with 10 acres (4 ha) of water was only 14 miles (22.5 km) from the capital and accessible by railway while Dagenham

Lake, formerly Boyer's Pit, in east London, was about 11 acres (4.4 ha) of water. As extraction wound down from the 1930s the lake was stocked with fish. Their returns policy resulted in some large carp and, unusually for the period, also returned pike, whose predation helped to keep fish numbers balanced. There was a further boom in the building trade after World War II, resulting in the creation of more gravel pits and recreational waters, which coincided with the growth in carp fisheries (Clifford 1992, 82, 92).

The supply of fish had long been a thriving commercial business, rising to new levels in the twentieth century, especially for carp. Early carp suppliers included Thomas Ford at the Manor Fishery, Caistor, Lincolnshire. Starting with trout in the 1880s he also supplied other fish including king carp, known for their rapid growth and so popular that by the early 1900s they dominated his business. The Surrey Trout Farm (established 1867) imported carp from Holland and also supplied other coarse fish. Large numbers of fish were brought in each year; on one trip, before World War II, 80 cans, each stocked with 250 four inch (10 cm) carp were imported, around 20,000 fish. These were mainly mirror and leather carp supplying ponds, lakes, rivers and canals across the country (Clifford 1992, 18). A price list just after World War I shows carp, pike, perch and native cyprinids as well as more exotic species such as pikeperch, silver orfe, sunfish and diamond bass. The silver orfe is a cyprinid, sunfish and diamond bass probably refer to members of the Centrarchidae family of fishes.

Pike – from prize to pariah

Booth (2011) has referred to the period 1865–1914 as the 'Golden Age' of pike fishing. Alfred Jardine was considered the champion pike fisher of his generation; both Jardine and Cholmondeley-Pennell published books on pike fishing. The latter's publication of *The Book of the Pike* (the first exclusively on pike) in 1865, heralded Booth's 'Golden Age'. J. Pollard's painting entitled *Live Bait Fishing for Jack* (engraved by R. G. Reeve) of the mid-nineteenth century shows an angler having laid down his rod and pulling in a pike with live bait clearly visible (Pl. 13). The work is 'Dedicated to the Members of the Waltonian Society by a Brother Angler', Pollard himself. Irish pike were particularly sought; larger than those found in England they attracted anglers of means. Many developments in specialist tackle for pike fishing were made in this period. Live baits (dace, gudgeon and roach) were sold from central London shops and could be kept in readiness in boats with live-wells. Clothing catered specifically for the pike angler and a 'pike guide' could be hired on many public pike waters. However pike fever seems to have disappeared with World War I and was not rediscovered until around the 1950s, though there is some evidence from rod manufacture that it was not entirely out of fashion. Booth (2011) attributes the decline to the effects of two wars, the Depression and fashion. The middle and upper classes lost interest in pike fishing and became more devoted to fly. While pike fishing was in decline other areas of angling continued to expand.

Within angling, general changes in prey and practice may have affected the popularity of pike fishing. Previously it had straddled the angling divide being technically a coarse fish but also favoured by game fishermen. It now became less popular and possibly less common; this period (1914–1950) has been referred to as the 'Pike Fishing Dark Ages' by Booth (2011) who concludes although the beginning of the 'dark age' coincided with the outbreak of war, it was probably already in a state of change. This view was supported by Martin (the Trent Otter), who wrote in the late nineteenth century that pike were already in decline through over-fishing. Nuances of the craft were lost and the renaissance of the 1950s would require a reinvention of pike angling techniques. Booth illustrates this downturn using the example of a famous angling supplier. Farlowes from 1880 to 1910 regularly advertised both half and full page advertisements in the *The Field* and the *Fishing Gazette* for specialist pike tackle. By 1930 their 400 page catalogue had one entry for pike, a vermin trap for use in trout waters (*ibid*., 2011, 311), demonstrating how pike were viewed by many at that time. Other specialist suppliers of live bait and pike tackle stopped advertising in the *Gazette* after the war. Though already in decline, the effects of World War I may have made returning anglers more aware of the cruelty of live baiting for pike in a changing class system, redefined and more egalitarian.

However, there must have always been a core of pike enthusiasts as Hardy's brought out five new pike rods in 1934 and another in 1938, which continued in production until the early 1950s (Turner 2009, 319). If live baiting was losing popularity, imitations filled the gap. Game fishermen had now become more exclusive, concentrating on fly fishing for salmon, trout and grayling; which had become increasingly specialised to the degree a different fly was suggested for use each month (Hodgson 1904; 1906).

The few books on pike written post-World War I books tend to be by older anglers, who were already well established at the end of Booth's 'Golden Age '(1865–1914). Of 'middle' to 'upper' class their books were unlikely to appeal to 'working class' anglers. Pike fishing was sometimes included as a small section in books devoted to fly fishing with illustrations of salmon and trout and gentlemanly advice on tipping ghillies (Scottish fishing guides). These books, often with costly colour plates, were not for the working class coarse angler and pike fishing became a minority art falling between two stools. Booth concludes that pike fishing only occupied a major place in angling again as a part of specimen angling, which did not begin to dominate the angling scene until the 1950s.

New arrivals and settled immigrants

The late Victorian period also saw the introduction of two species that would become increasingly popular in coarse fishing in the twentieth century. Pikeperch (or zander) in 1878 and wels (or the Silurian catfish) in 1853 or 1863. Neither were introduced for food (though they are eaten in Europe) and took some time to escape their confines and become established as anglers' quarry.

New cyprinid arrivals stocked in ornamental ponds included a golden form of the tench, possibly introduced in the later nineteenth century from Germany or Austria. The goldfish was now well established and sold on the London streets from the late 1800s, though it was still a novelty in some rural areas. Flora Thompson (1978, 340) remarks on an aquarium 'with live goldfish' in the fishmongers shop in Candleford. Goldfish in bowls featured in contemporary art, often showing children or cats gathered round the bowl, for example *The Goldfish Bowl* (Charles Edward Perugini, 1870) and *Two Girls with a Goldfish Bowl* (John Everett Millais, 1864). *The Goldfish Seller* (Leslie George Dunlop, 1835–1921) shows a hawker selling them door to door (Pl. 14). Goldfish bowls were also regarded as a suitable Victorian decoration for a cloak stand, which had a place for a lamp, flowers or a 'glass with goldfish' in *Ackermann's Repository* of 1882. The popularity of goldfish at the end of the nineteenth century can be measured by import figures of around 14,000 per week from Piacenza, Italy by L. Cura & Sons, founded in 1859, whose London trade card describes them as 'Importers of Fish, Reptiles, Amphibia etc. and dealers in glass globes' (Clifford 1992, 15). As discussed above, aquaria were also popular, large public ones drawing many visitors. At home, more expensive than 'globes' but a happier environment for the fish, aquariums were available in different shapes, the most expensive were entirely of glass, others had iron frames and slate bases. Whether housed in a globe, bell jar or aquarium, goldfish were an ornament to any aspiring household until the craze was over in England in the 1860s, bankrupting William Alfred Lloyd who had opened two shops in London catering for all the aquarists needs.

In outside waters carp were still regarded as difficult to catch and more common in enclosed waters such as ponds and lakes than rivers, with some rumoured to have originated from medieval stockings. A possible factor initially hindering the spread of carp into unenclosed waters could have been the 'Little Ice Age', when Britain experienced a series of colder winters, and even the river Thames iced over, as lower temperatures restrict carp breeding. Carp were introduced just at end of the medieval warming period and the lower temperatures in the late 1600s could have affected the minimum breeding temperature of 18°C for their spring and late summer spawning.

Bowlker, in 1854, describes carp as a lake and pond fish, seldom found in rivers. Francis Francis (1861) listing fisheries in England, Scotland, Ireland, Wales, Brittany and Belgium, the fish stocked and information on tickets and the nearest railway does make some reference to carp. He recommends The Dyke, near High Wycombe, Buckinghamshire, where Lord Carrington will give permission for fishing and has pike, tench, perch and 'big' carp. The old Bishop of Winchester's ponds at Frensham ponds, near Farnham, Surrey stock perch, tench and carp which 'don't take well' (*ibid*., 25). 'Big' carp were to be found in Richmond Park's Penn Pond (created in 1746) and also found in the 'long canal' of Hampton Court. The River Lea tended to have more carp than the Thames, but fewer barbel. There were plenty of 10 lb (4.5 kg) carp in many ponds and lakes, but few of that size had been caught. Ground baiting is recommended and the use of a strong rod with good sized rings, though carp were little fished in

rivers, usually being caught by chance when ledgering for bream or barbel (*ibid*., 57, 60, 99). Using two rods was only considered sporting when fishing for carp, which says something about their wiliness to avoid capture. Carp of 10 lb (4.5 kg), considered a decent size in the nineteenth century, are minnows compared with 70 lb (31.7 kg) record specimens of today, though some were of more exceptional weight. Houghton (1879), records one of just over 24 lb (10.8 kg) caught in 1858 in Petersfield, Sussex.

The 'domestication' of carp produced a sturdier fish, originally fully scaled, with a 'notch' behind the head not seen in the wild ancestor. They were generally a golden olive brown, with golden eyes, a yellowish white belly and dark brown fins, as described and illustrated in Houghton (1879, 49). Trophy cased carp from the late nineteenth and early twentieth centuries show specimens as small as 4 lb (1.8 kg) mounted in cases with a bowed glass front showing off the fish to best advantage (www.fishermansemporium.co.uk). Large is a relative term, in the 1930s a record size was 26 lb (11.8 kg) and anything over 15 lb (6.8 kg) was trophy sized.

The ability of carp to avoid the hook, making them so attractive to anglers' today, had long been recognised. Francis Francis (1876, 76) may have not wanted carp for lunch but described them as cunning, requiring all the angler's skill, especially 'wily old veterans of the pond'. He remarked on their ability to 'become shy if much fished for'. Martin (1885, 155) recommended using the bait to hide the hook completely 'or Mr. Carp will soon find the latter out'. Bailey (1857, 36), and described carp as 'shy and crafty'. Wheeler (1897) found large carp one of the most difficult fish to capture, especially in much fished or disturbed waters, providing fine sport and fighting to the last. River fishing for carp was described as 'unremunerative' (Hill 1930, 163). In the same volume carp were described as 'uncatchable' and 'I will maintain this under persecution' (Moore 1930, 280). MacMahon (1946, 150) describes the carp as 'a pond fish, who eats bread and cake cast on the pond but as soon as a hook and line is concealed in the bait, they ignore it "with scornful ostentation" or carefully carry it in their lips, avoiding the hook'. Carp grow large and old because 'as any embittered angler will tell you a large carp is purely and simply not to be caught' (ibid., 149). All agreed carp were easier to catch in ponds than rivers and their 'cunning' nature was later confirmed by experiments which showed that a carp hooked once was less likely to take a baited hook for at least a year, learning 'acquired hook avoidance' (Beukema 1970). Trials on pike revealed similar abilities.

The challenge of carp was to make them very big fish in every sense; waters were primed with bait in preparation for fishing, as specimen angling grew in popularity. Today's record fish qualify as morbidly obese as record weights increase, and carp are big business. Carp with different scale patterns and accelerated growth had been imported since at least the late nineteenth century from the continent where they had been selectively bred for some time. These 'king carp' were released into the Thames from at least 1895 onwards by the Thames Preservation Society and others. Stocking records also confirm king carp were released into enclosed waters, the beginnings of the carp 'industry'. From their introduction as prime food fish in elite ponds, they had

morphed into ornament and sport fish, gradually building up a dedicated following among coarse anglers.

By 1912 king or 'mirror carp' were described as 'much more common in English waters as time progresses' and were to be found in ornamental lakes and ponds and some rivers such as the Sussex Ouse and East Anglian Great Ouse rivers (Clifford 1992, 10). Large carp could be found in the Cheshunt Reservoir as well as tench, pike and perch. The Highbury Angling Association leased the reservoir from 1910 for £25 per annum, a rather small sum compared to the £1250 per annum charged to clubs for stretches of 2–3 miles (3.2–4.8 km) of English trout streams (Hodgson 1904, 111). However, the Highbury was not an angling club for low paid coarse anglers. The letter of application included the society rules and a list of members 'to show the social standing of some of our subscribers' (*ibid*., 46) clearly indicating that 'gentlemen' would be fishing the reservoir; they need not fear the presence of the lower orders.

Cheshunt became known as an important water for carp after Hugh Tempest Sheringham, at that time editor of *The Field* and all round fisherman, wrote of a month setting up in 1911. This would seem an extraordinary amount of time to most people today. The first week was spent preparing tackle, checking the depth of water and building a wattle screen. In week 2, ground bait was thrown, half a pint every other night of a variety of ingredients including bread, peas, rice, barley and worms. By the third week the carp were used to the bait and given it every day. In week 4, the rod was to be progressively pushed out over the water from behind the screen over 2 days, a hookless baited line put gently in the water over 3 days and finally, early Saturday morning, the angling began! This is described as 'tongue in cheek' by Clifford (1992, 47) and the story ends that evening with a 'monstrous' pull on the line and then the carp pulled away and escaped the hook, living up to its reputation. This level of detail may seem absurd to the non-angler, but recently pre-baiting to familiarise carp was cited as an unfair advantage in World Carp Championships in Romania. The ability of carp to detect a hook in bait has also been referred to by other anglers, hence the careful preparation.

In 1930 the following statement was prophetic 'probably all that stands in the way of popularity of this branch of fishing is ignorance as to the proper methods of indulging in it', although carp were the most cunning of fish their 'good appetite' or greed, makes them easier to catch (Hill 1930, 170). An entry in the *Angler's News* in 1930 by C. T. Ansell describes careful baiting and preparation in much the same way as Sheringham had described some 20 years earlier (Clifford 1992, 152). There were carp fishers but they did not yet have a broad appeal to the majority of coarse anglers. In 1941 the *Observers Book of Freshwater Fishes* declares most people fishing for carp do so to stock ornamental ponds, and to that end the author uses a barbless hook. This was a matter of welfare as the barbless hook caused no wound nor inflicted unnecessary pain (Laurence Wells 1941, 91). These are not yet compulsory under UK law but private fishing lakes may insist on their use. There is also a movement to ban double and triple ended hooks as a matter of welfare.

Confessions of a Carp Fisher was published in 1950 by BB (Denys James Watkins-Pitchford) and considered by Herd (2010, 314) to be the first book to identify carp anglers as a 'clan'. The Carp Catchers Club formed in 1951, was an informal group, which started with three anglers (including BB) and expanded to include a few other select invited 'carpists' between whom a newsletter was circulated. A pivotal moment in the rise of specimen carp fishing occurred when Richard Walker (of the Carp Catchers Club) made a record catch in 1952. Walker went on to develop specialist tackle paving the way for a whole new chapter in carp related tackle and accessories.

The time line ends, having inevitably been taken over by carp, with Richard Walker's record catch. Initially christened 'Ravioli' by Walker, 'Clarissa' was captured in Bernithan Pool (now known as Redmire) near Ross-on-Wye, Herefordshire, a 3 acre (1.2 ha) water often described as the home of carp fishing. She was one of a consignment of 50 fish of 5½–8 inch (14–20 cm) size of fast growing Galician (Polish origin) king carp bought from Holland in 1934 by the Surrey Trout Farm to combat weed growth in the pool. Redmire was to be the site of three carp records: on 3 October 1951 a catch of 31 lb (14 kg) by Bob Richards broke the previous 1930 record of 26 lb (11.8 kg). Within a year that record was broken by 'Clarissa', a common carp, on 13 September 1952 at 44 lb (20 kg) and was to stand until 1980. Richard Walker sent her to the London Zoo Aquarium, where she was renamed and lived (there are rumours of doppelgangers) until her death in 1972 when she could no longer escape the taxidermist. By then her weight had dwindled to a mere 28 lb (12.7 kg).

Clarissa's celebrity was the beginning of the cult of the carp, and a key piece of evidence in research of this phenomenon (Clayton 2014). She set the stage for celebrity carp, named, repeatedly caught, weighed and photographed. Other fish of size, including tench and barbel have also been named and pike are back in fashion, but the carp seems to be the poster fish. Record weights of other fish have all increased through time, but none so much as the carp. For example, in 1874 the record for pike (the nearest rival by weight to carp) was 36 lb (16.3 kg), rising to 46 lb (20.8 kg) in 1992: an increase of about 20%. The biggest increases in carp weight have taken place from the 1950s, with the maturing of young stock bred for size and imported from eastern Europe from the 1930s (Langridge 2006, 239). Clarissa was one of these improved fish and a steep rise in carp weight has resulted from an increase in the food supply through continuous baiting. Specimen carp and increasingly specialised forms of coarse fishing have been the driver behind the growth in business producing improved stock, enclosed water management and angling equipment, a long way from Mr Crabtree's advice in the 1940s in the *Daily Mirror*.

Afterword. Linking the past and the present where carp is king

A retrospective

Looking back over the millennia of man's exploitation of freshwater fishes it can be seen that key elements have not changed – the desire for big fish and the basic methods used to catch them. The materials have changed, but all fishermen would recognise universal common features. Size has always mattered, big is better in ceremony, gift exchange and trophy – from large pike from the Neolithic, Bronze and Iron Ages through medieval gifts of fish from private ponds to modern champion koi and record anglers' catches. Fish have been imbued with human attributes from early times; salmon were linked with wisdom in Celtic myth – the mystery of salmon migration may have been seen as a journey to acquire knowledge. From the earliest angling books carp were described as wily, chub could be fearful and pike bold and greedy. Fish were adopted as heraldic devices as a play on family names, a sign of status. In medieval medicine their flesh was regarded as cooling compared to meat. The mucus from tench, the 'doctor fish', was thought to have healing properties, apparently observed from other fish rubbing against it to heal their wounds. Gesner (a sixteenth century Swiss physician and polymath) claimed medicinal properties for pike including a cure for plague.

The depiction of freshwater fish in western art shows a progression of styles and meanings, reflecting changes in society. Fish were an artistic motif in Roman bathhouses and early Anglo-Saxon metalwork. As Christian symbols in medieval wall paintings and still life compositions they were symbols of penance, fasting and a reminder of Jesus as fisher of men. Paintings showing staged displays of fish in markets from the sixteenth century (largely continental) and the bucolic managed angling scenes and trophy fish portraits, beloved of British artists, from the eighteenth, nineteenth and twentieth centuries are of their time. They celebrated man's dominance over nature. From the later twentieth century, trophy freshwater fish are returned to the water under catch and release after a photo with the angler, often

uploaded to an angling website. In art they are now celebrated more as part of nature, live, swimming and elegant, as captured in a much earlier artistic tradition in China and Japan. A particularly effective lightness of touch can be seen in the work of the contemporary artist Carl Ellis (see www.carlellisfishart.com), capturing the essence of live fish in an ethereal, almost unfinished style. A contrasting and effective style can be seen in the work of David Miller, who through first hand observation underwater captures fish in their natural environment (see http://www.davidmillerart.co.uk/).

Cultural changes in the attitude to the medium of water, partly engendered by 'otherness', have been influential in changes in attitude to and exploitation of freshwater fish from prehistoric times. The pre-agricultural relationship of hunter-gatherers to water, their harvesting of coastal and riverine resources, seems to have been generally different to that of early agriculturalists, for whom there is evidence for a cult of aversion to exploiting freshwaters. Both pagans and Christians revered springs and wells for their mystical properties; the Romans adopted already sacred waters in Britain for their own gods and Christians rebranded pagan shrines and springs by linking them to saints and miracles. In some contexts water retained mystery, associated with sacred beings and miraculous cures, in others the magic was lost.

Outside sacred waters, from at least the Roman period, waterways suffered pollution around settlements from animal and industrial waste. In Saxon England waterpower was harnessed for the growing numbers of mills, part of a continuing process of altering and managing watercourses and wetlands. Freshwater fisheries were increasingly exploited; the migratory eel was most numerous, once used as payment for medieval rents and fattened in sophisticated pond systems. The volume of obligate freshwater fish consumed across society is distorted by the documentary data, a record of elite practices and not representative of all groups. In the bone assemblages from archaeological sites obligate fish are few, elite practice by definition only reflects the few. Freshwater fisheries were superseded by marine supply from at least the eleventh century meeting national needs and tastes more effectively. It has been suggested that a decline in freshwater fisheries was the trigger for a rise in marine fishing but this is not supported by recent analyses of bone data from London, where the decline postdates the rise in marine fish (Orton *et al.* 2017). The marine supply increased independently as a response to cultural and economic reasons of supply and demand.

One of the most significant changes in the cultural significance of freshwater fish was the growth of pond culture after the Norman Conquest. In enclosed waters fish could be controlled by size and number and were effectively privatised as an elite statement. Another major change came with the introduction of carp in private ponds from at least the later fifteenth century, displacing bream as the fish of choice. The scant archaeological bone evidence for carp is more contemporary with the first record of carp in ponds, than the earlier thirteenth and fourteenth century documented examples for carp served at feasts. The faster growth rate of carp made it the favourite

pond fish in elite circles, though pond culture in England seems to have been on a much smaller scale in terms of the numbers of fish raised and sold compared to some parts of Europe. Although carp are classed as domestic this did not preclude their falling out of favour on British tables, along with other freshwater fish, and have become part of the avoidance of 'wild resources' which Sykes (2017) has described as characterising the last 10,000 years of culture in England to varying degrees.

In sport carp were to remain largely unappreciated among mainstream coarse anglers until the later twentieth century, though various authorities commented on their adeptness at avoiding the angler. The other carp, crucian, does not have the same growth potential and, though likely introduced about the same time, did not become a common pond fish in Britain although popular in Scandinavia, withstanding lower temperatures than common carp. The English waterscape became increasingly privatised with land enclosure, where private stocked ponds made carp, bream, chub, barbel, tench and pike symbols of wealth in medieval England. This practice continued through the changing fashions in design on private estates, as water features remained an essential part of the managed landscape. However, these fish began a slow demise on the table from the early modern period, from an elite statement to a despised dish, with consumption mostly restricted to some rural areas.

Today these fish are almost exclusively for sport in England, where most are released after capture. Sport angling was well established by the later medieval period as revealed by the earliest angling tracts, reflecting a traditional craft rooted in an oral tradition. Evidence of sport fishing has also been found through other sources in art, medical tracts and poetry, but the main archive is in the growing corpus of angling literature starting in the late fifteenth century and from the eighteenth century commercial advertising and field sports journals. Both reflect an increasingly specialised sport and growth in coarse angling was to accelerate from the mid nineteenth century, as workers in industrialised and urbanised Britain embraced coarse fishing as a leisure activity. Angling was more acceptable than other 'working class' sports to Victorian morals in which control and 'civilised' behaviour were major concerns.

The rapid rise in coarse angling among the working classes in the industrial context of the Victorian and Edwardian periods has been analysed as a reflection of socio-economic conditions. Historians have argued the rise in the development of sports, including angling, was used as a method of control by authorities to impose bourgeois values and codified behaviour on the working classes. In many sports this tension was to be exemplified by the amateur status revered by the 'upper classes', with sufficient time and surplus income to support their sporting ambitions. Whereas 'working class' participants often aspired to professional status where leading players reaped financial rewards. For the amateur gentlemen player professionalism was contrary to the ethics of sport. This was particularly evident in cricket, where separate changing rooms catered for 'gentlemen', amateurs (who often benefitted financially) and were referred to as 'Mr' and professional 'players', known by their

surnames only. The attitude of 'amateurs' was to handicap England in international competition with regard to funding used to raise standards of fitness and skill; other nations had no such qualms.

The concept of controlling Victorian working class behaviour in part through sport has come under some scrutiny. Trantor (1998) examined the conflicting views of historians as to why the working classes indulged in sport. These included gambling on results, camaraderie versus competition, escape from work, improvement in quality of life and sport for health and profit. He observes sheer pleasure is often overlooked. Outside the structured working hours imposed to optimise industrial output urban coarse anglers were not to be dictated to. They enjoyed their fishing clubs, beer and gambling, aided by hoteliers, publicans and breweries sponsoring fishing competitions for profit.

However, it would be a mistake to judge coarse angling as the lesser sport to fly fishing. Although denounced by some fly devotees, many angling voices from the past clearly did not define themselves as following a superior form in fly and enjoyed both equally. The division between the two forms has its roots in the intensity and scope of the Industrial Revolution and urbanisation when a growing socio-economic group embraced an accessible, affordable leisure activity, encouraged as less threatening than some violent 'sports' of earlier times. Coarse fishing became a sport that defined this class, rather than a judgement on the merits of fly or bait fishing, though sometimes expressed as such. It is tempting to see coarse fishing as an allegory for nineteenth century class division – fly fishers who could afford to cast for game fish in unrestricted clean, fast flowing private waters versus coarse anglers setting their bait for fish in polluted rivers and canals in stretches unclaimed by private fisheries. It was not reflected to the same degree in other European countries where industrialisation and urbanisation developed at a slower pace.

Progressive land ownership raised the status of managed fish and waters and over the centuries brought coarse angling to its current position, as has the clear demarcation of public leisure spaces. The number of private parks rapidly increased after the Domesday survey with 31 recorded, rising to over 1900 between 1200 and 1350. The prime parks were enclosed with deer leaps while others lay outside the arable land of a manor, where semi-domesticated deer mixed with domestic animals. Water was an important element, providing beauty, animal watering places and stores for fish stocks. Enclosed waters were a part of the progressively managed British landscape, in part a response to land as private property and later to meet the needs of an urban public with leisure time when they wished to enjoy a sanitised 'wild' experience. This was also provided by municipal parks, estate gardens and zoos, a growth industry from the nineteenth century and encouraged as thought to be 'improving'. Schama (1995, 559) encapsulated the public appetite using the example of Denecourt's transformation of Fontainebleu forest in France into a tourist destination, but it equally applies to English management of public spaces: 'He understood the need of the modern city dweller for designed excitement ... just enough remoteness

for the illusion of wildness ... calculated exertion, protected exposure ... measured doses of alarm ...'

Managed landscape with the illusion of wildness was made publically accessible as changes in transport, primarily the railways, made 'days out' possible for a section of society hitherto restricted by costs. England is one managed landscape to varying degrees and within that management today's coarse fishing lakes, stocked with fish and planted around with trees, have a long history back to at least the Norman invasion. Their use has evolved with cultural and social change, being both private and municipal, but these artificial landscape features remain a constant only subject to changes in style.

The cult of the carp and other challengers in angling

Carp, the largest and most lucrative coarse fish today was not the fish of choice for most nineteenth and early twentieth century coarse anglers. They continued to be a minority interest until the capture of record fish 'Clarissa' in 1952, regarded as a milestone in carp fishing and a record that stood for 29 years. Carp are now the premier fish for many specimen coarse anglers and the peculiarly British cult for individual celebrity carp shows no sign of abating. However, even after 'Clarissa' it was a 'slow burn': in 1966 'an angler' writing in the Field Section of the *Times* (12 February) illustrated contemporary diverging views. Titled *The Cult of the Carp*, the anonymous writer acknowledges carp are challenging, becoming more adept at evasion with age. Carp anglers are described as a growing 'sect' finding carp compelling, always looking for new carp waters and fishing from dusk through the night. The writer is disparaging, declaring:

> It is difficult for most modern Britons to regard the carp as a particularly attractive fish, even if not prejudiced by trying to eat it. The gross and corpulent figure, the small and seemingly sanctimonious mouth, the secretive and devious way of life which enables carp weighing 30 lb (13.6 kg) or more to inhabit quite small ponds without disclosing their presence, all contrast with the lean forthrightness which outdoor men value in their friends and generally find in their quarry.

Continuing, they are likened to obese medieval monks. Further comments refer to their palatability, or lack of:

> In modern Britain they rarely reach the table ... Most people may think our island diet has suffered little in consequence: easier perhaps to make a compote of warm wet cotton wool laced with pins than to catch and cook the carp which so closely resembles it.

This echoes the view of Francis Francis and others in the nineteenth century and is far from the medieval prized table fish and object of elite gift exchange. Angling surveys illustrate the relatively recent rise of carp; in the 1970s carp barely featured, with 39% of anglers citing roach as their preferred catch and 29% pike, which had

become popular once again. By 1994 36% showed a preference for carp (Franklin 1999, 112), a figure still rising.

The 'sect' of carp fishers has become mainstream and more, for many anglers carp is king. There are clubs devoted to carp, such as the British Carp Study Group founded in 1969 and the Carp Society founded in 1981. There are at least five magazines exclusively devoted to carp, books, blogs and web sites. No other single coarse fish species attracts this following and level of marketing. Today record carp, more than any other coarse fish, reflect modern celebrity culture. They have their own backstory, character traits and media coverage and are the ultimate product of enclosed, stocked waters and catch and release. Trophy marine fish and salmon are of interest for their size and anglers' tales of endurance but, if released, the chances of recapture and the creation of a narrative are minimal. The practice of angling freshwater fish in stocked, enclosed waters may have a long history, but individual celebrity fish are a late twentieth century phenomenon.

These fish have been honoured with obituaries, memorial services and are reputed to be the cause of both marriages and divorces and subject to skullduggery. There have been stars like 'Benson' who peaked at 64 lb (29 kg) and died in 2009. A common carp with perfect scales, he was said to have overdosed on bait nuts and possibly the victim of foul play. 'Two Tone' (67 lb/30.3 kg, died 2010, *Times* 17 August 2010), a mirror carp revered by many, was refused by the Natural History Museum for display on the grounds he was an introduced species and an angler's trophy. Sadly, the legend has resided for years in the freezer awaiting his final resting place, the taxidermist or back to nature (*Telegraph* 16 July 2015). 'Fat Lady' (61 lb/27.6 kg, died 2011), another mirror carp, was over 30 years old with a legendary appetite and was caught over 200 times. She was much mourned and had a stretch of water named after her near her burial place – Fatty's Point (*Telegraph* 29 July 2011).

More recently, in 2016, 'Parrott', also a mirror carp, set a new record at 68 lb (30.8 kg) and died August 2017 to be immortalised by the taxidermist, but was soon surpassed by 'Big Rig' at 70 lb (31.7 kg), who was caught in 2016 and died post-spawning a year later (*Telegraph* 03/08/2017). This female mirror left some 5000 valuable offspring, whose growth rate promises to reflect their parentage. However she has caused some division in the 'carp community', derided by some as not British and a 'bloated tourist'. The controversy centres on 'Big Rig's' origins and rapid weight gain; she was imported to Britain from Israel in 2009 weighing 3 lb (1.3 kg). By 2014 she was 39 lb (17.6 kg) and sold to the fishery. Her origin, in a much hotter climate, could have induced a higher growth rate which, together with accusations of over-feeding, fuelled heated debate regarding the legitimacy of her record. The British Record Fish Committee (BRFC), ultimately rejected 'Big Rig' on the grounds she was artificially grown to near record weight, restoring the primacy, for now, of 'Parrott', named for his narrow mouth. As a result of the controversy the BRFC are looking at new ways to combat the introduction of specially reared large fish to a fishing water, soon to be caught at record weight. Measures under consideration include

proof of provenance, the history of the fish, how long it spent in the waters where it was caught and how it was fed. This requires each fish to be identifiable: recording distinctive scale patterns has been suggested as a way to identify some individuals, or fin clipping. Faulty weighing equipment has been used to 'up' fish weights and the BRFC are committed to eradicate all forms of cheating (*Telegraph* 6 February 2018). Most record carp are the descendants of imported 'king carp' bred for accelerated growth and weight gain, so the residency requirements are debatable, but perhaps one generation bred in Britain should be a prerequisite.

This illustrates the passion and intensity of competitive carp fishing, which has attracted a particular type of angler sometimes known as the 'bivvy' (from bivouac) or 'Rambo'. These anglers approach angling like a military operation, fully equipped with the latest technology and camping gear more suited to true wilderness than a managed fishing lake. This approach was already anticipated in the 1960s by the 'angler' journalist's description of carp fishermen putting up tents and lighting fires to see them through the night. Some traditionalists do not endorse this approach, as not in the spirit of angling and therefore unsporting.

Similarly the heavy baiting of the 'swim' before casting has come under some criticism adding to the debris and decaying material on the bottom of the water. Carp anglers devote significant amounts of time 'spodding' (the spod is a 'bait rocket', open at the end with a buoyant nose cone) the water with secret mixes, often quite spicy with chilli a favourite additive. The spod can be repeatedly cast at distance and accurately on a line, or shorter distances by catapult, releasing the bait. The quantities of bait used to attract the fish are a significant part of the carp angler's expenditure and a practice outlawed in some waters in North America. Once the water is primed the angler baits his line taking account of water conditions, but still the carp may not bite. This attention to detail is nothing new and recalls Hugh Tempest Sheringham's month spent setting up for carp fishing in 1912 with a mixed ground bait laid down over two weeks (see Chapter 7).

Modern team competition is represented nationally by the men's 'Carp Team England', currently ranking fifth in a mostly European league table. There is a ladies 'Carp Team England' and, since 2015, the 'Welsh Ladies National Carp Fishing Team'. Although relatively early days, both women's teams have competed against Holland with planned international matches against France and Italy. This small redress of a gender imbalance in competitive coarse angling is a reflection of a greater interest taken by women in angling generally.

The largest carp have all been caught in enclosed waters where repeated ground baiting and catch and release have ensured a steady weight gain, where these valuable fish cannot escape. Heavier fish have been caught in Europe, helped by higher summer temperatures and, although a draw for British 'carpists', have not diminished the allure of home waters. The world record is currently (2017) 105 lb (47.6 kg) from Euro Aqua lake, a 146,000 acre (59,084 ha) gravel pit near Lake Balaton in Hungary. With record fish of such size there is an onus on fisheries to provide at least some larger fish. Immature small stock are cheaper to buy in, but a long term investment and may not attract

specimen anglers for some years. Fisheries are judged on the size range of the fish stock and in such a competitive market some larger fish are a necessary investment to draw anglers. As with other species the pedigree of the parent influences price, carp known for growth and weight produce valuable offspring. The drive towards producing potentially record fish has raised some questions of balance between over management and sport. At what point (to paraphrase some critics) does the fishing resemble a giant goldfish bowl filled with overfed fish? For them some fishing lakes have lost their challenge.

No other cyprinid in the UK can compete with carp for weight: the closest is barbel. It is also popular with anglers, described by Walton (1653, 103) as a 'lusty and cunning fish'. The Barbel Society was founded in 1994 and manages stretches of water for angling. The current record is 21 lb (9.5 kg) and barbel are the second favourite fish of British specimen hunters, with some fish achieving celebrity status more usually attributed to carp. In 2015 the untimely death of 'Big Lady' (over 20 lb/9 kg), observed being pulled out of the water, killed and eaten by an otter, drew the ire of anglers for whom barbel is the ultimate sporting coarse fish: 'The Prince of the River' (*Telegraph* 30 July 2015). Needless to say the reintroduction and protection of otters by the Environment Agency is not popular with anglers or fisheries owners who have claimed heavy fish losses. Pike, once again popular with anglers, is the native British species to come closest to carp in weight with a current record of 46 lb (20.8 kg), unsurpassed since 1992.

The 'domestic' carp has, in addition to the distinctive notch behind the head and variable scale patterns, a larger mouth, longer intestine and different fat distribution than the wild form, resulting in a greater growth rate. The chambers of the swim bladder in wild carp are of equal size, whereas in domestic carp the anterior is larger, possibly to support the greater mass of the head (Balon 2004). The carp is both introduced, though regarded as ordinarily resident, and a 'domesticate' (Locker 2010). Together with goldfish, carp are the only fish in the UK that justify both terms according to Balon (2004), though more flexible parameters for fish domestication and 'domesticated' fish have been used by other authorities (Duarte *et al.* 2007; Teletchea and Fontaine 2014). Despite their well-documented presence as pond stock from the later fifteenth century carp are poorly represented in the archaeological record of that period and later. Roach and dace are the most commonly identified of the cyprinids. Comparison with other introduced luxury species such as peafowl (with few bones of Roman and Saxon date, but increasing from the eleventh century) and turkey (introduced in the early sixteenth century; Poole 2010) show both birds more frequently identified than carp.

In outdoor ponds carp are the most familiar fish today and particular selective breeding has resulted in many colour forms and body shape of a type of ornamental common carp known as 'koi'. These are recent arrivals; koi carp did not reach Britain until the mid-twentieth century and were not common until the 1960–1970s. Koi or goi means carp in Japanese and were first selectively bred for colour in Japan around 1800. Initially red, further breeding resulted in the 13 varieties recognised today (Langridge 2006, 69). They are thought to have first been bred by farmers in

Prefecture Niigata, north-west of Tokyo, who bought young fish from merchants to grow on as winter food. After a severe drought reduced the gene pool in the 1780s the farmers started to breed fish selected on colour from at least three strains of common carp. Multi-colour and red showed better growth rates than black and most of the breeding before 1915 was based on red and white fish (de Kock and Gomelsky 2015). There have been various claims for an earlier origin but uncorroborated by authenticated records, though it is possible coloured koi may have been bred in the early 1700s, or at the earliest mid-1600s, according to Tamadachi (1994, 18). They remained a Japanese interest through the nineteenth century and, in 1914, coloured carp were shown at the Taisho exhibition in Tokyo. Their later popularity in the United States and Europe was assisted by improved air travel for safe transportation of the fish and they were widely exhibited.

Koi now have a global appeal and are very popular in the UK though there are few breeders and many are imported from Israel and Japan. They are much admired for their colour markings but, in quality show fish, the body shape is more important. In competition 30% of marks relate to body shape (symmetry and broad shoulders indicate good growth), 20% colour, 20% pattern, 10% each for quality, elegance in swimming and appearance (Tamadachi 1994, 176). The last three categories allow points to be awarded on features like fin shape and perfection as well as more enigmatic elements that add to the overall look. There are a number of different types of koi based on colour and pattern, though their popularity changes with fashion. The original *Kohaku*, white carp with red patches, first established in the nineteenth century, are judged on the position and shape of red areas, purity of colour and clear demarcation against the white background. Size, as always, is important and may mitigate other flaws. Scales can be smooth, diamond like or with a central 'pearl' raised area. Some koi popular in the west are not valued in Japan, for example the white *Shiromuji* or plain red *Akamuji* used to be culled but are now exported.

The allele (gene mutation) that determines the scale pattern to give fully scaled, linear, leather or mirror koi carp is also linked with growth. Both linear and leather carp tend to have reduced growth and survival rate (de Kock and Gomelsky 2015). As with anglers' carp stock, size and quality affects koi prices. Lower quality fish are stocked in pet shops and garden centres while high quality koi are bred by specialists who eliminate poor quality fish by culling in the early stages. Tamadachi (1994, 44) identified four basic koi shapes, ranging from a wild streamlined shape, through to the 'Ishugrudel' or 'Israeli carp' a food fish, which has the heavy body shape seen in record anglers' fish. The allele governing scale pattern and growth results in most record weight anglers' common carp (fully and evenly scaled) or mirror (with some large scales). One exception in angling was a leather carp, (with few or no scales), 'Heather', aged around 50 and weighing 52 lb (23.5 kg) who died in 2010 and was described posthumously as 'more than a carp, she was a legend, a dream' (*Times* 8 June 2010). Koi are not part of British carp angling, unless an 'escape', but they are in the United States where carp fishing has evolved rather differently.

Two other non-native species of size for British anglers are wels (also known as the Silurian catfish) and pikeperch (or zander). Introduced in the nineteenth century they are popular with specimen anglers, but do not have the same large following as carp. All grow larger in higher temperatures, especially wels known for its impressive growth rate in the warmer waters of the Ebro in Spain. Unlike carp, now considered naturalised, both wels and pikeperch require a government licence for legal stocking in the UK and must be contained. The Catfish Conservation Trust (founded 1984) estimates there are 500 licenced waters in the UK and around 100 unlicenced. The CCG advises on angling protocol, and also 'rehome' fish found in unlicenced waters. 'Cat' fishing is a growing area in angling attracting younger men, according to a recent study (Rees *et al.* 2017). The relatively recent arrival of wels with a greater potential for growth and weight, even over carp, may be the attraction for less traditionalist anglers. Pikeperch are most prevalent in the Fens in Cambridgeshire and Norfolk and rivers including the Thames and the Severn. Their habits differ from their namesake the pike, although similarly predatory and fished with the same tackle, they shoal and prefer deeper water and are relatively minor in coarse fishing.

American connections

'Across the pond', in the United States, where British interests influenced modern culture, coarse fishing today seems very much the minority player in sport fishing, a fact lamented by Brook Landis in *American Coarse Angling* (2002). This may in part be due to early 'colonist' attitudes where fly fishing was the only fishing for English 'gentlemen' abroad. This is well exemplified by 'Frank Forester', the pen name of a famous sporting journalist of British origin in the 1850s. The tone of his writing on coarse fishing and its practitioners is derisory, for him bottom fishing is like shooting sitting birds rather than those on the wing. Bottom fishing is too easy, fly, spinning and trolling are the only sporting methods. Unsurprisingly his opinion of carp is also low, at that time they were recently introduced and escaped from ponds into the River Hudson. The New York assembly had placed a preservation order on carp for 5 years to his great disgust, protecting 'a coarse watery foreign fish ... a scaly foreigner' which he felt obliged to describe as it was to be a game fish of America. For Forester carp and other cyprinids had no redeeming features 'no where under the canopy of heaven are the genus *Cyprinus* worthy to be accounted sporting fishes and nowhere are they eatable' (Herbert 1859). However, in the 1870s–1890s there was great investment in carp 'cultivation' introducing the carp to many areas in North America, although the quality did not match European carp and so many escaped that they were later seen as a pest.

Today carp fishing is a growth sport but still a minority compared to trout and bass fishing and American carp do not challenge the European record weights – yet. The American Carp Society was founded in 2002 promoting these former 'trash' fish as desirable anglers' quarry. They also offer guidance on fly fishing for common, koi

and grass carp. The koi are largely escapes but said to offer good sport. In the forward to *Carp on the Fly* (Reynolds *et al.* 1997) fly fishing for carp is described as one on the last frontiers of opportunity for fly fishers in North America, which 10 years earlier would not have been accepted. Pressure on waters, traditional species and expense has led to a new generation of anglers less traditionalist and open to fly fishing for 'coarse' fish such as carp.

In North America fly fishing for trout and other salmonids is still seen as the more elite area of the sport. Bass fishing is very popular and viewed as more democratic and inclusive, not least because bass are now in found all states. Competitions are held for the biggest or most fish: in 1999, 54% of all anglers fished for bass (Franklin 1999, 109). There are a number of black bass species but most well known are largemouth bass (*Micropterus salmoides*) and small mouth bass (*Micropterus dolomieui*). These predatory fish are caught using large flies, lures, spinners and, since the 1950s, flexible 'plastic worms' which imitate live prey when pulled through the water. The rivalry between trout and bass fishers is summarised by Schullery (2002, 153) describing, though not subscribing to, the view of the stereotypical trout angler as 'bookish', with custom made tackle, against the bass angler with his powerful motor bass boat complete with electronic gear and poor grammar. The latter is reminiscent of conflicting opinions on some British anglers.

Even within fly fishing for salmonids social distinctions have arisen in the United States between fishing practices and between the west and east coasts where the difference lies in the legal and social status of the waters (Schullery 2002). The east coast has a long history of fly fishing for Atlantic salmon as the only true method, plus a long literary tradition originating from Britain. On the east coast Pacific salmon and steelhead (the migratory form of the rainbow trout, rather like the British sea trout and the brown trout) can and are fished by a number of methods on many waters, but writers were few and many early proponents were 'blue collar workers'. They enjoyed their fishing but did not necessarily have the time or inclination to write or read about it. Schullery also suggests fishing books were traditionally geared to the eastern market, though now the west coast has its own fishing genre. Similarly English fishing literature catered to a certain social group until the end of the eighteenth century (restricted by cost and literacy) when a few affordable coarse fishing books were written and grew into the major sector it is today.

Fly fishing for coarse fish in England

The use of 'flies' to catch coarse fish is very much a minority practice in England where bait dominates angling for cyprinids in particular and has a long literary tradition, though some have blurred the lines within accepted practice. In 1930 a number of classic fly patterns were recommended for chub, dace and roach including the coachman, black gnat, olive quill, palmer, alder and zulu (Pl. 15a). Dace were particularly rated for dry fly fishing and a chapter is devoted to the method in *Fine*

Angling for Coarse Fish (Ensom 1930, 237). Today specialist 'flies' are made for carp in the form of some of their favourite foods, aptly named the 'Bonio' after the dog biscuit, 'Breadcrust' and the 'Bobby Black, resembling a bluebottle fly (Pl. 15a top row). These are sturdy compared to the classic designs for other cyprinids but mimic the type of bait traditionally used. It is very much a minority interest in British carp fishing and not allowed on some waters. The penchant of pike for live bait is reflected in a number of imitative designs for frogs and fish fry (Pl. 15b).

Modern management or ancient practice

There are some 30,000 still waters for fishing in England and Wales according to 2010 figures. Statistics from the Environment Agency in 2004 revealed that, although over half coarse anglers had fished rivers, only a third preferred them. There is some feeling that anglers are being drawn away from rivers to commercially run and stocked still waters which are variable in the degree of management and domestication of the angling landscape. At the apex there is a niche market of highly managed waters in a modern artificial setting. These heavily stocked, purpose built ponds with manicured surrounds remove the inconvenience of mud and minimise the walk to the water from the car park. Cafés and toilet facilities also sanitise the experience; a lack of toilets was named in a recent survey as a deterrent for women. These instant angling worlds are very functional, with interlocking water bodies maximising the angling areas with planting and preparation of the bank by 'swims' where the fish are known to congregate. One example at Poppleton, near York, has six closely placed, well stocked ponds of varying interlocking shapes, designed specifically for angling pegs, with on-site parking, a café and toilets (Eden and Barrett 2010). From the air these ponds resemble medieval landscape features of ancient interconnected store ponds, rather than the managed natural looking grand water features of the Capability Brown era (Pl. 16). They do not appeal to every angler but follow historical precedents as far back as Roman times, where wealthy villa owners supplied guests with rods and lines to fish from the host's stocked ponds. This was emulated in the Georgian period, with specially constructed stone fishing houses, with every facility, sited on artificial lakes. These provided a 'civilised' place from which to fish, eat and relax, untroubled by mud or bad weather. History shows us a wide range of approaches to fish and coarse fishing have always prevailed.

Modern coarse angling is by necessity heavily managed and regulated. The concept of 'wild Britain', man at one with nature, is largely a mythical past, tamed with the actions of the first Neolithic farmers. Arguably the management of salmon rivers and streams and trout fisheries renders them no more wild than a stocked coarse fishing lake. Are salmon or trout any more challenging than an experienced carp? Their ability to learn 'hook avoidance' along with pike was scientifically proven in the 1970s and Langridge (2006, 98) draws attention to their ability through weight and speed to escape once hooked, exploiting their favourite weedy overgrown watery environment.

Though many changes have taken place through the history of coarse angling in water management and tackle development the ephemeral connection of the serious angler to the water remains a constant whatever the method. Committed anglers invest time observing water conditions and their effect on fish behaviour, the skill of 'watercraft'. Their understanding of flow, depth and current helps the angler 'think like a fish' (Eden and Bear 2010). This age-old practice is evident in the earliest angling books including *The Treatyse of Fysshyng wyth an angle* (1496) and also in *The Compleat Angler* (1653). J. W. Martin (1885, 9), the everyman angler of the late nineteenth century, encapsulates the ethos; 'it is not essential that the angler is a naturalist, but the more he knows of fish the better ... finds himself amply rewarded for the time spent'. Many of today's coarse anglers still dedicate themselves to the long haul whatever the weather.

Coarse anglers made up 87% of all anglers in England and Wales according to 2007 figures, an indication of coarse fishing's popularity and accessibility. Figures vary over licence numbers, but are currently somewhere around a million a year. Coarse anglers divide into match, pleasure and specialist (Bear and Eden 2011) and their practices are regulated to protect water systems and fish stocks. These have their origins from at least the early medieval period. Closed seasons protect spawning stocks and were recognised early on as essential to safeguard future fisheries. Today the coarse angler requires a licence for most waters, the non-migratory trout, coarse fish and eel licence entitles one rod to be used on rivers, streams and drains. At extra cost two to three rods may be used under certain conditions in enclosed waters. Additional licences may be required, for example on Thames weirs and locks.

The investment in enclosed stocked waters has improved welfare for some fish, largely to protect stock which are more valuable alive than dead. Coarse angling tackle has progressively evolved to enhance the welfare of returned fish, with barbless hooks and other accessories such as mats to protect the fish from damage before being returned to the water after weighing and photographing. This consideration is long overdue for a group long seen as without any sentient feelings and a beneficial consequence of protecting the lake owner's investment in trophy fish. Photography has replaced the taxidermist.

Both in sport and ornament the value of cyprinids, particularly carp, in stocked lakes, and koi, ensures they have generally fared much better than their relative the goldfish, still used as fairground prizes. The only effect of the *Animal Welfare Act* of 2006 was to raise the age from 12 to 16 years as legally eligible to 'win' these unfortunate fish. A recent appeal to parliament in 2016 to ban their use as prizes was rejected. The curse of the goldfish bowl also continues though less there is increased awareness of the unsuitability of this tiny, sterile, poorly aerated prison. As early as 1864 the French aquarist Pierre Carbonnier remarked disparagingly on the continuous circular motion forced on goldfish in a bowl, a time when goldfish and bowls were sold on the streets of London. In 1948 Hervey and Hems remarked 'a goldfish in a bowl may sound an innocent enough ornament, yet, in reality, it compares unfavourably with

the Black Hole of Calcutta' (1981, 59), an infamous eighteenth century prison. The goldfish may be good luck in China, but it has not had the good fortune to become an anglers' prize and enjoy the care and attention lavished on carp.

Twenty-first century perspectives

The concept of coarse angler as 'man the hunter' is not sustainable in any closed water environment according to the criteria of Cartmill (1993). Angling can only be hunting if the fish is wild, in a river (not confined) and killed. Currently coarse anglers on rivers may keep one pike up to 65 cm, two grayling of 30–38 cm and 15 fish up to 20 cm of native species such as roach and rudd on any one day. On all counts coarse fish in enclosed waters – caught and released, a significant part of coarse angling – fail the hunting test. Catch and release is much more prevalent in Britain than other European countries and demonstrates part of our changing relationship with animals in sport and hunting. For England and Wales 2015 licence figures show an 11.2% participation rate per capita for all forms of recreational angling (mostly the trout, coarse fish and eel combined licence), fourth in Europe after Norway, Finland and Scandinavia, but a very low catch and keep rate (Cooke *et al.* 2017). In Germany the catch and release practice of specimen carp anglers, as well as their specialist approach, has caused division within anglers as well as criticism from animal welfare groups. Cyprinids, pike and perch are still seen as a 'table' fish whereas they are not in Britain. Only catch and kill is accepted as ethical angling in Germany although within the 16 states and at a local level the ability to set the size of return fish has resulted in some grey areas for legitimate catch and release (Arlinghaus 2007). Animal welfare groups support catch and kill as the only legitimate reason for causing fish distress, caught as food and anaesthetised before killing. Although coarse angling is a significant sport in western Europe and valuable commercially there is no consistent view on catch and release. This seems to be in part culturally driven by the contemporary view as to whether they are good to eat. Arlinghaus (2007) cites Germany's antipathy to catch and release as a consequence of its agrarian past. The rapid industrialisation of Britain, creating an early significant sector of urban society, plus changing culinary tastes, may have been a significant driver in catch and release. Jackson (2012, 185) attributes the earlier trend for sport angling in art and literature in Britain compared to Europe as a reflection of differing attitudes to fish as sport and food.

We are ever more distant from our food sources, especially meat production. In the bones archaeology reveals a tiny, selective snapshot of what we left behind in earlier times. We were once much more connected to the live source of the flesh on our plates, from buying live poultry and fish killed and prepared at home for the table, to the killing of the house pig and familiarity with the slaughterhouse. Urbanisation and industrialisation were vehicles of change in methods of food supply, meat has been progressively sanitised for the customer. Much meat and fish is packaged with most bones removed and with them any anatomical evidence of origin to suit our

convenience and sensitivities. Fish bones have proved to be a vital part of the evidence in the earlier parts of the story of our exploitation of freshwater fish, complemented and then ultimately supplanted by documentary and other data as the food supply changed. Cultural evolution has changed our perception and use of obligate freshwater fish in a unique way, from a fatal end on the table, to sporting and ornamental, where many live a full lifespan. Other than the brown trout (caught on the fly), there is no direct corollary with other hunted and or emparked species, such as deer and rabbit, that may be both wild and farmed for food. These 'coarse' fish now hold a unique position in English culture, part of leisure, and a connection with nature linked with modern celebrity culture for record fish, expressed through media. As a valuable asset, they enjoy protection and a duty of care a long way from earlier practices of live crimping and gutting.

As an archaeozoologist, researching this book has highlighted how much we, together with other disciplines, all need to 'think outside the box' about obligate freshwater fish. Context is cultural and temporal as well as archaeological. For example, carp are a pest in the Murray Darling Basin in Australia where they became too much at home after introduction in contrast to being a highly valued anglers' fish in western Europe. In North America carp are moving from 'trash to cash', as an overly successful introduction is being redirected into angling. Introducing species has so often proved problematic with unforeseen consequences with many species now labelled 'invasive aliens'.

In archaeological samples the bones may be evidence of more than food, the fish may have been eaten, but equally be symbols of religion, power and sport. Our exploitation of this group in particular has been heavily influenced by cultural changes, from avoidance, demonstrations of power in private waters, on and off the table. In parallel, sport angling developed and, as tastes changed, has become their modern commercial purpose. There has been a lot of focus on carp, justified by the impact of their introduction initially in elite circles and culminating in today's angling scene. Today the other cyprinids all have their role together with pike, perch and minor players such as ruffe as an important part of both commercial fisheries and river ecology. However, it is carp that seems to have garnered the most attention, but which is still so rare in the bone record. It seems very unlikely that any of them will ever return to the table, though fish farming has supplied the UK with salmon and trout there is no appetite to tempt British palates back to the produce beloved of medieval store ponds.

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